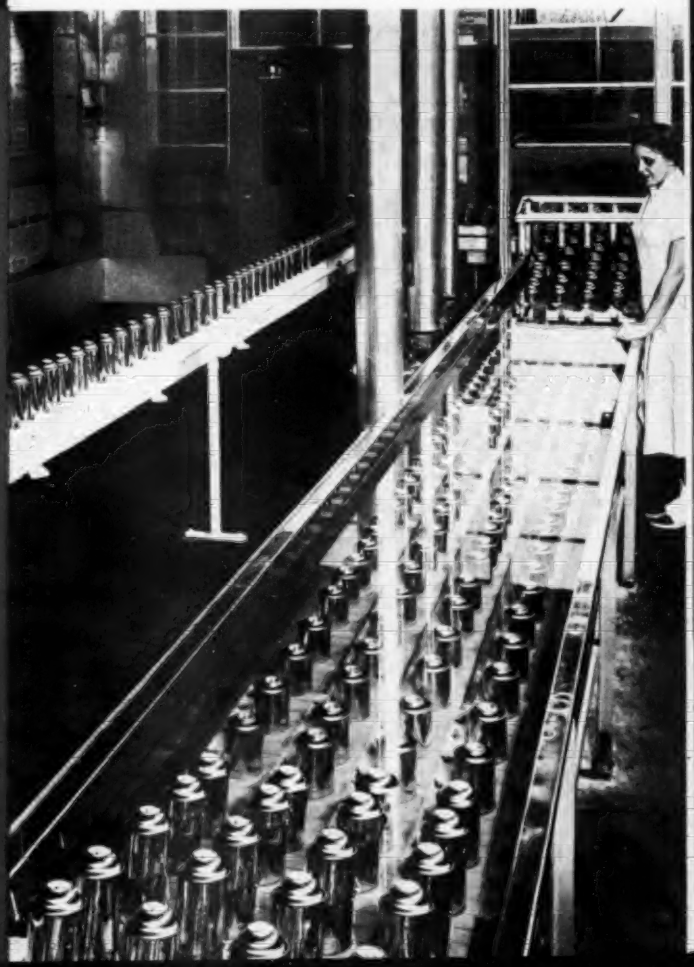
AEROSOL AGE

THE MAGAZINE OF PRESSURE PACKAGING

IN THIS ISSUE:

- Compressed Gas Propellants
- CSMA Meeting Report
  - Corrosion Inhibitor
  - Hazardous Labeling
  - Powder Aerosols
  - Insecticide Symposium
- IFT Meeting Report
- Stalfort Hydrocarbon Line
- SCC and TGA Meet in New York
- CSMA Product Survey



JUNE, 1961

COMPLETELY GLASS ENCLOSED AEROSOL FILLING LINES FOR COSMETIC PHARMACEUTICAL AND FOOD PRODUCTS

As the nation's largest aerosol loader and custom filler of conventional packages, Stalfort offers a high-speed liquid fill line, with a rated capacity of 15,000 glass or high-density polyethylene bottles per hour. A complete line of household chemicals—waxes, cleaners, polishes, detergents — for private label packaging is also available.

An all stainless-steel, high-speed line for loading aerosol products, even powder, under sanitary conditions, is in operation at our modern Pressure-Pak plant. Such things as soluble spices and flavorings, syrups, toppings, sauces, meat tenderizers, etc. can be filled for test or production runs.

SPECIALISTS IN THE FILLING OF ALL TYPES OF CONTAINERS WITH ALL TYPES OF PRODUCTS

JOHN C.

STALFORT

AND SONS, INC.

321 W. Pratt St., Baltimore 1, Md.

Manufacturing Chemists Since 1868

new *2-way protection on shelf or counter

A·R·C TAMPERPROOF Aerosol Valve Seal

* Prevents Sampling of Contents

* Assures Unused Packages

Easily removed following directions on top

Here is the modern, low-cost way to make your aerosol product more acceptable . . . more salable . . . to jobber, dealer and consumer alike! With the new A.R.C. "Tamperproof" Seal, the valve *cannot be actuated* without breaking the seal — yet the seal is easily removed for use by the purchaser. Ideal for paints, lacquers, waxes, shoe sprays and other products that might damage store surroundings, shoppers' clothing, etc. Keep your package and product safe from accidental or willful tampering with A.R.C. "Tamperproof" Valve Seals.

- Fits all standard 1" mounting cups — usable with metal or plastic overcap
- Molded of polyethylene
- Available in clear. Special colors on request

***Write** for samples and prices*

Aerosol Research Company

743 South Circle Avenue • Forest Park, Illinois • Phone: FOrest 6-4880 • Cable Address: AERESCO

LICENSEES

Societe Francaise de Recherches Aerosol
17, Rue de Joly
Creteil (Seine), France

Deutsche Aerosol Ventil GmbH
Orffstrasse 19/21
Nurnberg, Germany

Aerosol Research Company (Great Britain) Ltd.
Jacey House, The Lansdowne
Bournemouth, Hants, England

Valvulas Aerosol, S. A.
Ave. Cuauhtemoc 60
Mexico 7, D. F.

Plastic-coated glass makes the ideal pressure container

Only Owens-Illinois pressure containers have this bond of plastic to glass

The plastic is more than a jacket around the bottle in an Owens-Illinois pressure container . . . it's bonded to the glass. It won't peel off, bulge or entrap air.

This permanent bonding of high-gloss plastic and glass gives you a tough and handsome container. Glass is inert to chemicals . . . is flavorless and odorless . . . and keeps what it contains at peak of effectiveness.

These colorful, fade-resistant and sturdy Owens-Illinois pressure containers come in a variety of shapes and sizes. Choose from stock designs, or let O-I create a new design just for you.

Every Owens-Illinois container can be permanently decorated with Applied Color Lettering.

DURAGLAS CONTAINERS
AN (O) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES • TOLEDO 1, OHIO
PACIFIC COAST HEADQUARTERS • SAN FRANCISCO

THIS MONTH'S COVER

A four-lane test bath is one of the features of the brand-new hydrocarbon filling line just put into operation by John C. Stalfort & Sons, Inc., Baltimore filler. The line features high-speed rotary equipment, explosion-proof filling "chamber," and the latest in gas-detection and safety apparatus. Additional photographs and story appear on page 42.

Wayne E. Dorland
Publisher

Donald A. Davis
Editor

Eleonore T. Kanar
Technical Editor

Tom C. Clark
European Representative

Edward Meier
West Coast Representative

Ralph Dorland
Advertising Manager

Paul J. Geiger
District Manager

Doris Metz
Circulation

JUNE, 1961 VOL, 6, No. 6

AEROSOL AGE

The magazine of pressure packaging

Feature Articles

COMPRESSED GAS PROPELLANTS FOR NON-FOOD PRODUCTS..... 20
By Robert C. Webster

AEROSOL PRODUCTION CONTINUES UPWARD DESPITE BUSINESS SLUMP 26

HAZARDOUS SUBSTANCES LABELING ATTRACTS MAJOR ATTENTION OF CSMA MEETING 29

CANADIAN RESEARCHERS REPORT ON NEW WORK WITH ALUMINUM CONTAINERS 37

TECHNIQUE IS OUTLINED FOR INCREASING POWDERS IN AEROSOL FORMULATIONS 37

NEW CORROSION INHIBITOR OUTLINED..... 38

NEW USES REPORTED FOR COMPRESSED-GAS PROPELLANTS..... 38

STALFORT BEGINS OPERATIONS WITH NEW HYDROCARBON LINE.... 42

FUTURE OF AEROSOLS IS DISCUSSED AT TGA MEETING..... 44

FOOD TECHNOLOGISTS HEAR SYMPOSIUM ON AEROSOLS..... 47

AEROCIDE DISPENSERS MARKS 15th YEAR..... 53

Departments

IN THE SPOTLIGHT THIS MONTH..... 12

INDUSTRY MEETING CALENDAR..... 12

THE SAMPLE SHELF..... 25
By J. N. Michell

CONSULTANT'S CORNER 51
By Robert A. Foresman, Jr.

NEWS OF PRESSURE PACKAGING..... 55

EQUIPMENT, PROCESSES AND BULLETINS..... 65

CUSTOM FILLERS AND PACKERS..... 81

NEW PATENTS 87

CLASSIFIED ADVERTISEMENTS 89

INDEX TO ADVERTISERS..... 91

SPRAY PATTERNS 92

Address all correspondence to Box No. 31, Caldwell, N. J.

Subscription Rates: U. S.. one year $3, two years $5; Canada and Pan America one year $4. two years $7; Foreign one year $7, two years $12.

Single Copies: current issue: $0.50. Back issues $1.00. Postage and handling charges for foreign countries on single copies: $1.00.

Published monthly on the 25th by Aerosol Publications, Inc. at 229 West 28th St., New York, N. Y. Advertising, Subscription and Editorial Office: Box No. 31, Caldwell, N. J. New York telephone: BArclay 7-7121. Advertising rates on application. Closing date for copy—10th of the month preceding month of issue.

Second-class mail privileges authorized at Post Office, Caldwell, New Jersey, with additional entry at New York, New York.

BIG NEWS! NOW DELIVERING ONE-PIECE DOUBLE STERILIZED ALUMINUM AEROSOL CANS AT STEEL PRICES OR LOWER!

AVAILABLE IN ¾ OZ. TO 16 OZ. SIZES

NO SEAMS at the top, bottom or sides to collect dust, dirt or corrosion . . . no side seams to rust, leak or come apart. VICTOR containers are *EXTRUDED*, all *ONE PIECE*.

ALUMINUM, the magic metal that makes your Aerosol container a superior one, because Aluminum is practically defect free, light, strong, easily formed into any size or shape.

LIGHTER WEIGHT to make shipping less expensive, handling easier, storing higher, lighter weight filled for easy mass displaying on counters, in stores, in show windows.

EASIER TO PRINT your sales message on the outside (including the shoulders) in any color or our anodized gold, silver, bright bronze, colors . . . easier to coat the inside, to protect your product.

PERFECTED AND AVAILABLE NOW from our high speed, automated, low-cost production lines in large quantities, competing with any other metal, with any other brand.

ONLY VICTOR'S EXCLUSIVE PROCESS STERILIZES EACH CAN TWICE; The Second Sterilization Is Done Just Before Packing To Provide The Maximum In Sanitary Protection

EXPERIENCE? *More than 200,000,000 aluminum containers a year for more than 30 years, for the finest brands in the world.*

UNITED STATES CAN CORPORATION

Subsidiary of VICTOR METAL PRODUCTS CORPORATION, Newport, Arkansas

Years of development of a product's reputation...a name for quality, efficiency and reliability—can be ruined because of one wrong decision, the choice of a valve manufacturer without the proper background and know-how to achieve the right results. That is why companies whose name for quality has been nurtured through the years, are extremely careful in selecting valves and components. Invariably after research and survey, their choice is Valve Corporation of America.

First, because VCA has always been associated with the finest...the top names in aerosol products. Second, because VCA has the reputation for engineering ability, quality control, production, marketing assistance and reliability. Finally, because VCA's name assures superior performance.

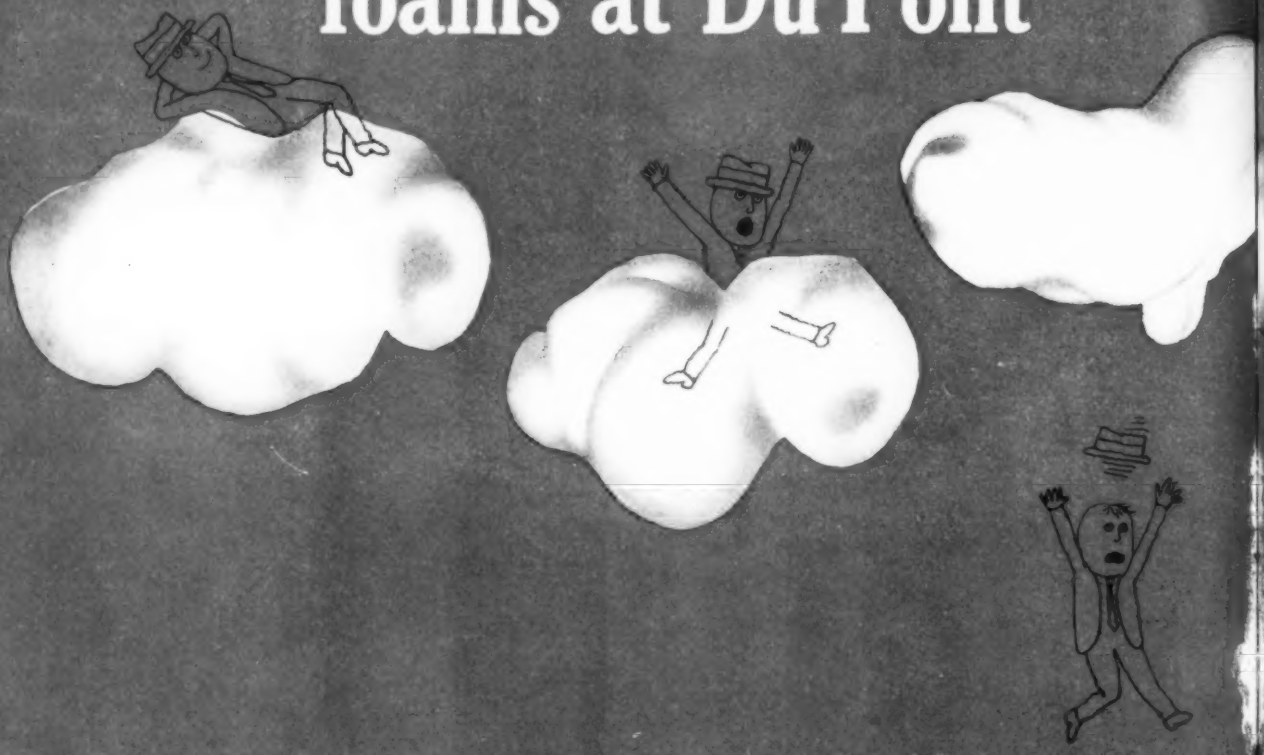
Don't let your product be led astray! Phone VCA today.

VCA INCORPORATED

VCA technical engineers are ready to assist you, too. Call today!

VALVE CORPORATION OF AMERICA, Inc.
1720 Fairfield Ave. • Bridgeport, Conn.

The sky's the limit on aerosol foams at Du Pont



HIGH STABILITY FOAMS

This is the stiffest branch of the Du Pont foam family. It includes a host of cousins with varying degrees of both stability and density. Ideal for shaving lather, rug and upholstery shampoos.

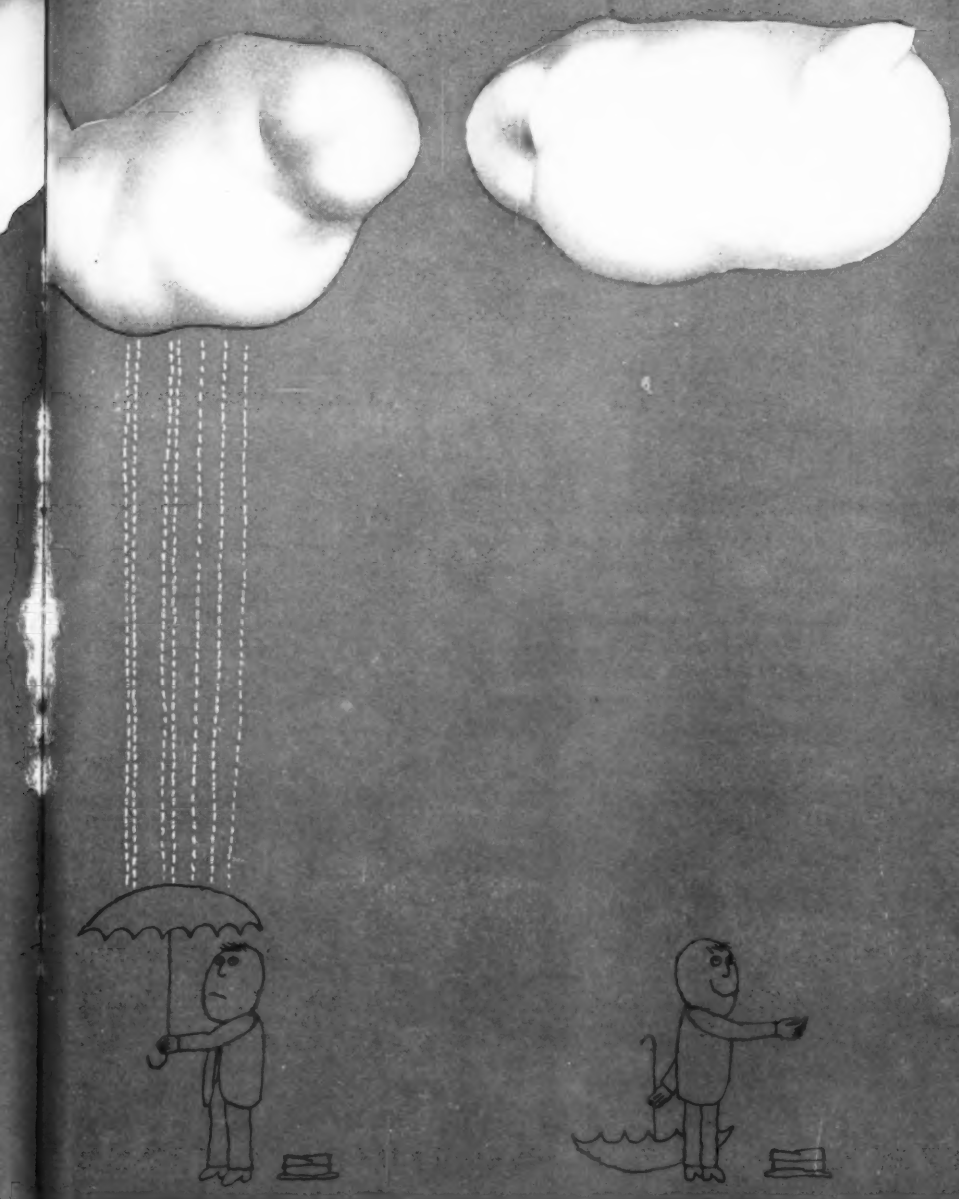
LOW DENSITY FOAMS

Members of this group are limber and highly workable—the kind you can rub in effectively and wipe off easily. They can sustain high detergency—make excellent dog shampoos, for example.

PRESSURE-SENSITIVE FOAMS

These foams collapse quickly when worked, leaving your product to do the job intended. They carry high wettability, perform wonderfully well with anti-fog formulations, glass cleaners and pre-shave lotions.

Foams of the future are born at Du Pont. And Du Pont's family of aerosol foams has grown into the largest and most varied—with new members constantly being added. Many of these foams have already been happily married to a tremendous number of successful products. If there's a foam in the future of your product, a foam with special physical properties, you can find it at Du Pont. Ask your "Freon" representative about the greatest collection of foams and aerosol-product information available.



QUICK-BREAKING FOAMS

Disappearing specialists, these are the "now-you-see-it, now-you-don't" foams. They break quickly upon application, provide exceptional wetting and ease of application, are perfect for such uses as hair preparations.

NON-AQUEOUS FOAMS

Newest and most versatile family members, these foams are based on polyhydric alcohols instead of water. They offer wide variation of stability, density and wettability. Applications? Virtually unlimited.

For more information on how Du Pont "Freon" laboratories will assist you in formulating the ideal foam for your product, write to: E. I. du Pont de Nemours & Co. (Inc.), "Freon" Products Div., N-2420AA, Wilmington 98, Delaware.

Best-selling aerosols are powered with **FREON®** **propellents**

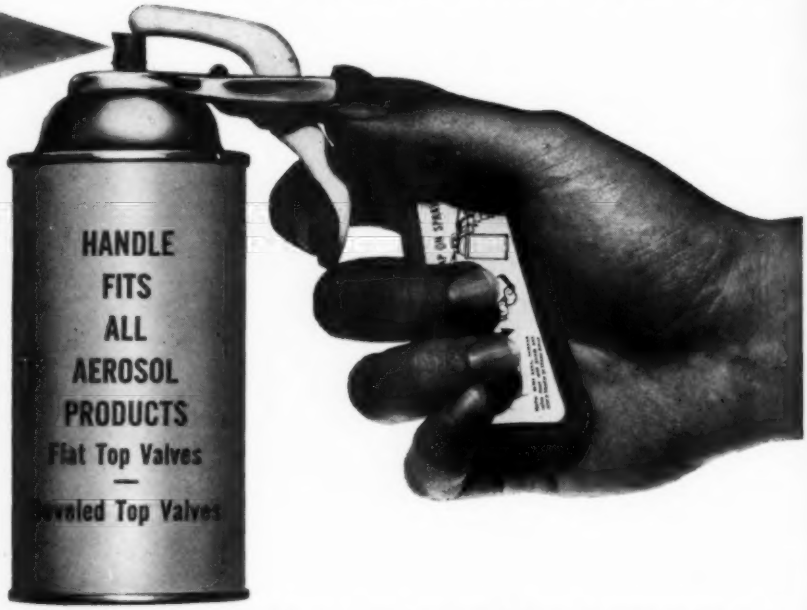
Better Things for Better Living . . . *through Chemistry*

DU PONT

REG. U.S. PAT. OFF.

NEWEST Alfco Spray-Can Handle MAINTAINS QUALITY DRASTICALLY REDUCES YOUR COST

TAKE AIM AT BANG-UP PROFITS!



SENSATIONAL NEW QUALITY LOW COST ALFCO SPRAY-CAN HANDLE NOW PRICE-TAILORED TO "FIT" YOUR SALES AND MERCHANDISING PROGRAMS!

SNAPS ON ANY AEROSOL CAN IN A JIFFY

Line up valve button with handle. Hook over forward lip, hold with index finger and press down. To remove, lift up on handle.

Write, wire or phone today for illustrated literature and price information.

ALFCO BRAND

No matter what you package in an aerosol can, *you'll broaden customer use, make more sales with ALFCO'S new low cost Spray-Can Handle.* What's more, you'll *keep* selling more of your product to more satisfied customers who'll find new cleanliness, less "finger fatigue," new ease and convenience in using it. The new ALFCO Spray-Can Handle adds even more prestige to what you have to sell through its smart, modern design and quality construction. And you can personalize it, identify it with your product, by means of your own private label!

Protect your reputation with ALFCO'S higher quality—lower cost

FOR USE IN UNLIMITED SPRAY APPLICATIONS

INSECTICIDES... Easier spraying of hard-to-reach areas of house and garden. Keeps hands from contact with toxic sprays.
WINDOW CLEANERS... Accurate spray pattern makes window cleaning easy. A "must" for reaching high windows, nooks and crannies.
HAIR SPRAYS... Your customers spray hair with great ease and pinpoint accuracy for even application. Ideal for beauty parlors.
PAINT PRODUCTS... Provides even, uniform professional applications of paints, lacquers, enamels, varnishes without fuss or mess. Keeps hands clean.
ART & DRAFTING... "Fixing" of artwork is a breeze, less messy. Even application eliminates runs and streaks. Many industrial uses.
MOTH SPRAYS... Provides complete directional control for spraying furniture, closets and carpets.

ALFCO, INC.

4950 South Sepulveda Boulevard · Culver City, California · UPton 0-6716

KIEFER

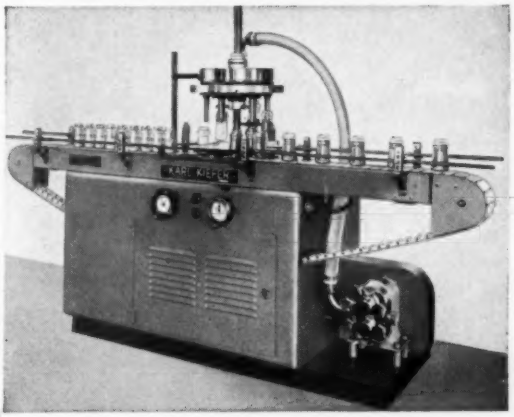
The most meaningful name in

AEROSOL CHARGERS AND FILLERS

Recognition of extreme accuracy proven by

CUSTOM LOADERS' selection
SHOPPERS' acceptance.

All assuring that it is easily the best equipment the market affords.



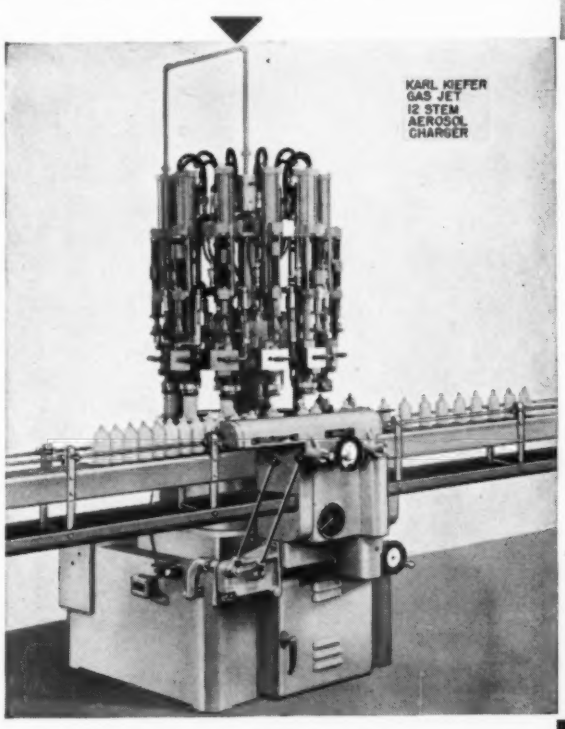
CADET VARI-VISCO FOR PRODUCT FILLING

KIEFER Gas-Jets are giving brilliant accounts of themselves. Worthy records have been made since 1890 by KIEFER Liquid & Semi-Liquid Filling Machines—Filters—Air Bottle Cleaners—Conveyors.

Just think, for 71 years. Yes, since 1890.

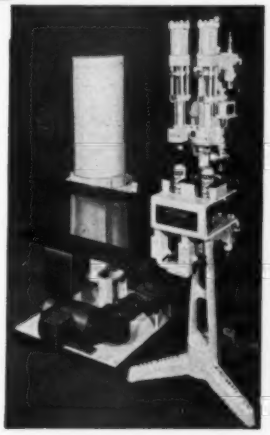
Buy KIEFER with absolute confidence.

Equipment available for whatever your production needs may be.



12-STEM GAS-JET AEROSOL CHARGER

MONO-PISTON VISCOUS FILLER



AEROSOL CHARGER
2-STEM GAS-JET Jr.

"Gas-Jet" AEROSOL BROCHURE — yours for the writing.

The Karl Kiefer Machine Co.

934 MARTIN STREET ESTABLISHED 1890 CINCINNATI 2, OHIO

NEW YORK • BOSTON • CHICAGO • SAN FRANCISCO • PHILADELPHIA • TORONTO
DALLAS • VANCOUVER • SAVANNAH • LOS ANGELES

BRITISH REPRESENTATIVE: C. S. DUMONT, LTD., LONDON, ENGLAND

INDUSTRY MEETING CALENDAR

CSMA Golf Tournament, Knollwood Country Club, White Plains, New York .....June 22

Interessen-Gemeinschaft Aerosole (German Aerosol Assn.), annual meeting, Haus der Chemie, Frankfurt/Main, Ger.....June 15

Drug, Chemical & Allied Trades Association, annual meeting, Pocono Manor Inn, Pocono Manor, Pa. .....Sept. 14-17

Chemical Specialties Manufacturers Association, Meeting of Board of Governors, Division Executive Board and Committees, Oyster Harbors Club, Osterville, Mass. .....Sept. 25-27

Society of Cosmetic Chemists, annual seminar, Barbizon Plaza Hotel, New York.....Sept. 26-27

National Hardware Show, McCormick Place, Chicago.....Oct. 2-6

Federation of European Aerosol Associations, 3rd International Aerosol Congress, Lucerne, Switzerland .....Oct. 3-8

Packaging Institute, 23rd Annual National Packaging Forum, Biltmore Hotel, New York....Oct. 18-20

National Agricultural Chemicals Assn., annual meeting, Homestead, Hot Springs, Va. Oct. 29-Nov. 1

Federation of Societies for Paint Technology, annual meeting, Shoreham and Sheraton-Park hotels, Washington, D. C.....Nov. 2-4

Packaging Machinery Manufacturers Institute, Cobo Hall, Detroit, Mich. .....Nov.. 7-10

Chemical Industries Exposition, Coliseum, New York Nov. 27-Dec. 1

Society of Cosmetic Chemists, annual meeting, Biltmore Hotel, New York .....Nov. 28

Chemical Specialties Manufacturers Association, 48th Annual Meeting, Roosevelt Hotel, New York, N. Y. .....Dec. 4-6

Chemical Specialties Manufacturers Association, 49th mid-year meeting, The Drake, Chicago .....May 14-16, 1962

In the Spotlight this month

- **Compressed Gas Propellants for Non-Food Products** . . . A new field for this type of propellant is discussed in the light of new data on propellant pressure exhaustion through mis-use of the can. Prepared by Robert C. Webster of Air Reduction Co., this article (on page 20) begins a series on this general subject.

- **CSMA Aerosol Product Survey Reveals New Gains for Aerosols** . . . Despite a general business slump last year, aerosol production continued its steady progression upwards. Starches and de-icers, new to the survey this year, help the general increase; but hair sprays, the traditional leader, also recorded a substantial gain. Complete figures of 1960 and 1959, together with an interpretation, begin on page 29.

- **CSMA Meeting Report** . . . Continuing its up-to-the-minute coverage of all aerosol papers given at the mid-year meeting of the Chemical Specialties Manufacturers Association, *Aerosol Age* this month features substantial abstracts of some ten-odd technical papers given in Chicago. Highlights of this meeting (coverage of which begins on page 29) include a symposium on aerosol insecticides, three papers on propellants, one on powder formulations, and much on the Federal Hazardous Substances Labeling Law.

- **Stalfort Begins Operations with New Hydrocarbon Line** . . . A spanking new aerosol installation is always of special interest to the aerosol industry, and this applies even more so with a safety-oriented hydrocarbon line. Pictures and story appear on page 42.

A BASIC CONCEPT WITH THE FLEXIBILITY OF YOUR IMAGINATION

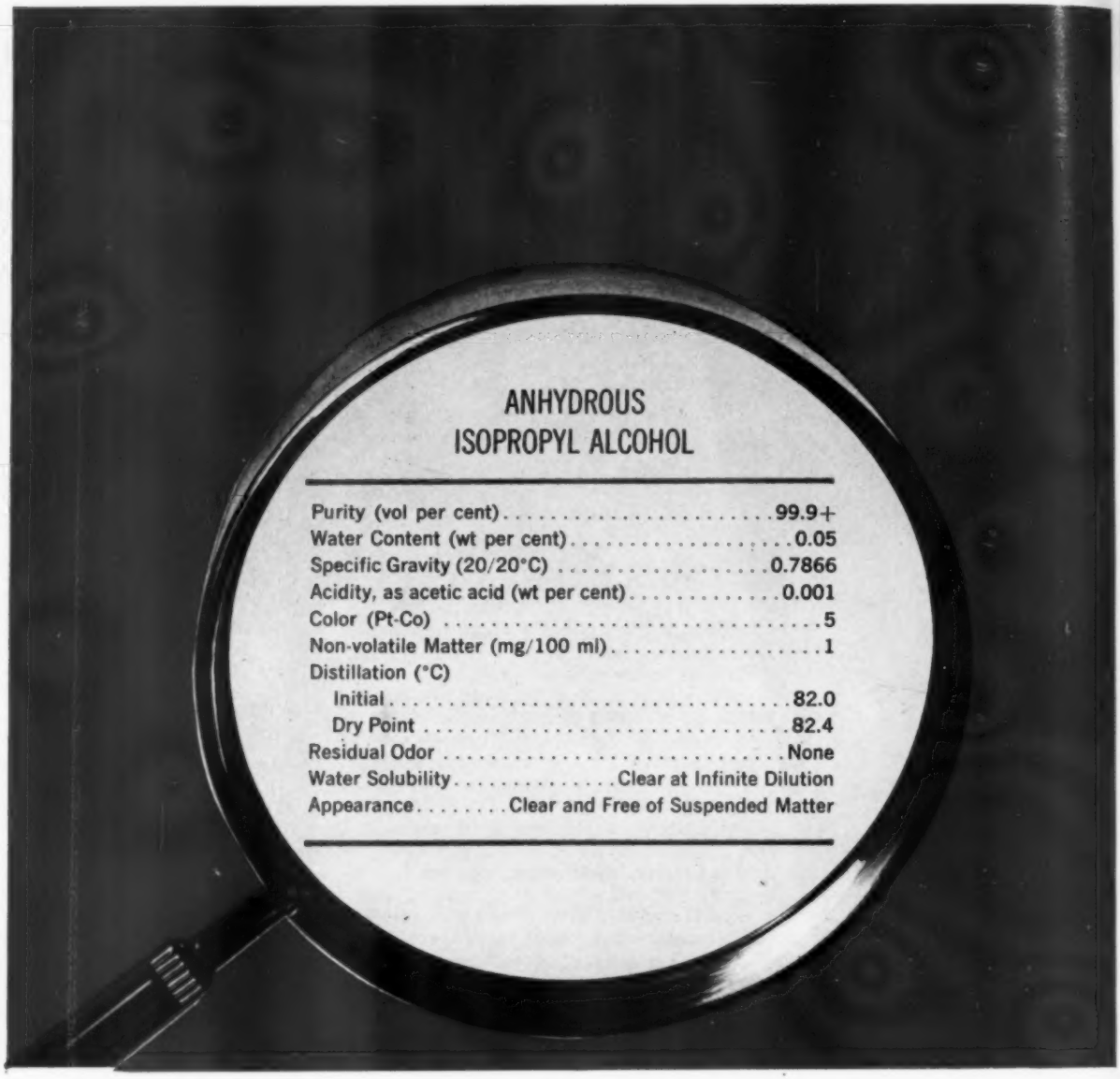
You specify the bottle shape and size—Newman-Green can provide the quality aerosol valve with the built-in adaptability to meet your specific needs. The basic design of the Newman-Green valve and its exclusive features always stay the same. Yet the concept is as flexible as your particular needs may be. Companies all over the world are using this built-in adaptability for a wide variety of products and propellent systems. When you specify Newman-Green bottle valves, you are buying the protection and economy of quality. And our experienced staff is ready to serve you now with the most prompt service possible consistent with the high quality standards aerosol customers have come to expect from Newman-Green.

WESTERN DISTRICT
1144 East Meda Avenue
Glendora, California
MAdison 6-9980

EASTERN DISTRICT
415 Lexington Avenue
New York 17, New York
MUrray Hill 7-7147

MAIN OFFICE & PLANT
57 Interstate Road
Addison, Illinois
KIngswood 3-6500

NEWMAN-GREEN *Creative Aerosol Valve Engineering*


ANHYDROUS
ISOPROPYL ALCOHOL
Purity (vol per cent) 99.9+
Water Content (wt per cent) 0.05
Specific Gravity (20/20°C) 0.7866
Acidity, as acetic acid (wt per cent) 0.001
Color (Pt-Co) 5
Non-volatile Matter (mg/100 ml) 1
Distillation (°C)
Initial 82.0
Dry Point 82.4
Residual Odor None
Water Solubility Clear at Infinite Dilution
Appearance Clear and Free of Suspended Matter

Take a Look at Typical Inspections for Enjay Anhydrous Isopropyl Alcohol...

Choose high purity Enjay Anhydrous Isopropyl Alcohol for your aerosol formulations. The inspections above show the high quality of this Enjay Alcohol. Where extra dryness and rigidly controlled odor are important factors in your formulations, Enjay Anhydrous Isopropyl Alcohol is the answer to your needs. Shipments can be made from conveniently located points in tank car or tank truck quantities.

For complete information on any Enjay chemical, contact: Enjay, 15 West 51st Street, New York 19, New York.

EXCITING NEW PRODUCTS THROUGH PETRO-CHEMISTRY

ENJAY CHEMICAL COMPANY

A DIVISION OF HUMBLE OIL & REFINING COMPANY

ENJAY

Dovetailed for successful selling!

PENICK'S ANTIBIOTIC SPECIALTIES AND

THE GROWING TREND TO AEROSOLS!

Safety, stability, precise dosage and other advantages of dispensing topical medication by aerosol are particularly attractive when antibiotics are involved. Many products are tremendously enhanced by including one or more well-chosen antibiotics to treat or prevent secondary infections in remedies for athlete's foot, burns, poison ivy and other conditions.

Penick makes a variety of non-systemic antibiotic specialties ideally suited to typical aerosol uses. Properly selected, they may be applied externally or administered topically through oral, ophthalmic and other orifices.

As foremost makers of bulk antibiotics, Penick should be your first source of supply. Our technical staff can recommend starting formulations and propellants and coordinate stability tests for you. Your inquiry will be handled promptly and in confidence.

NEOMYCIN Palmitate, Undecylenate and other complexes
TYROTHRICIN
GRAMICIDIN
BREVICIDIN T.M.
BACITRACIN
ZINC BACITRACIN

PENICK

NVQ *Chemical Division*

S. B. PENICK & COMPANY

100 CHURCH ST., NEW YORK 8 • 721 W. DIVISION ST., CHICAGO 10

LOS ANGELES SAN FRANCISCO PORTLAND, ORE.

PACKAGE YOUR PRODUCT IN AEROSOL CANS? WHY NOT? LIQUID STARCH IS NOW SPRAYED FROM THEM!

Not only liquid starch, but window cleaner, furniture polish, room deodorants, insecticides and many more. Why? Because aerosol cans make convenience a major selling advantage!

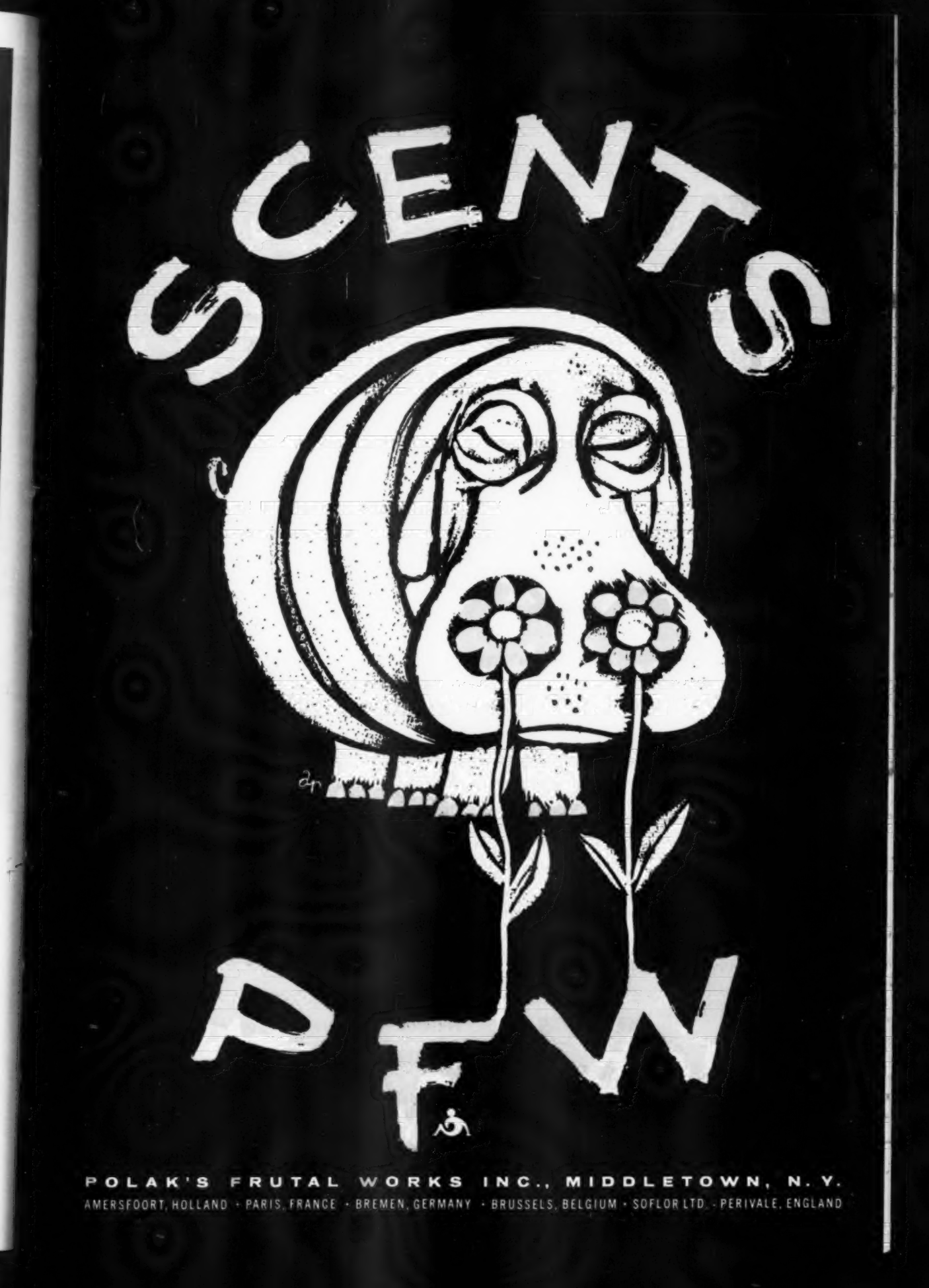
And why Crown? Because Crown originated disposable pressure packages. Crown offers you both the greatest experience and the most complete line—seamless Spra-Tainers, and fabricated cans featuring superb lithography. Pressures, propellants, internal coating systems—Crown knows aerosols from A to Z. Call on Crown!

YOUR PACKAGING DESERVES CROWN QUALITY

cans • crowns • closures • machinery

CROWN CORK & SEAL CO., INC.

9300 Ashton Rd., Philadelphia 36, Pa.



POLAK'S FRUTAL WORKS INC., MIDDLETOWN, N.Y.

AMERSFOORT, HOLLAND · PARIS, FRANCE · BREMEN, GERMANY · BRUSSELS, BELGIUM · SOFLOR LTD. - PERIVALE, ENGLAND

are
you
manufacturing
or
marketing...

"BRAND X"?

CONSUMER COMPLAINTS MAY BE THE REASON

Is your product second best with the consumer? Perhaps the cause is inferior valves which result in defects creating consumer resistance to repeat sales. Eliminate lost product sales caused by faulty valves. Why not play safe, it costs no more to use the aerosol valve which has quality built-in from design to delivery.

Use Precision—it's a sure way to better your position in the market place.

PRECISION VALVE CORPORATION
700 NEPPERHAN AVENUE, YONKERS, NEW YORK

EDITORIALS

The Shotgun Approach . . .

THE aerosol industry received quite a shock last month when its members saw the first draft of the proposed regulations to govern enforcement of the new Federal Hazardous Substances Labeling Act. The regulations turned out to be far stiffer than had been anticipated by most of the knowledgeable people in the industry.

To perhaps over simplify, it would appear that some of the regulations were written almost *capriciously* with little reference to the experience of the chemical specialties industry gathered over the past 50 years. Despite the good intentions expressed in the language of the bill as it cleared Congress, the regulations will, if adopted, blunt by over-use what has been in the past a most valuable tool in preventive medicine—the up-to-now respected precautionary label.

As will be seen by the account of the mid-year meeting of the Chemical Specialties Manufacturers Association (page 29), at least one trade group is very much disturbed over several aspects of the regulations. In its many meetings, the CSMA's Aerosol Division centered most of its discussion on several sections of the regulations:

> 1. The precautionary wording is required to be in uncondensed Gothic capital letters with the signal words "Danger," "Warning," or "Caution," and "Poison" in 30-point type, or type as large as the largest type appearing on the label. Also, this wording must appear on the front panel of the package.
>
> 2. A designation of methyl alcohol, turpentine, kerosene, as "highly toxic" substances requiring the signal words "Danger-Poison" on their labels.
>
> 3. Definition of self-pressurized containers (aerosols) as "extremely flammable," if, when tested by the Tagliabue open-cup method, "a flashback (a flame extending back from the burning candle toward the dispenser) is obtained by any degree of valve opening."

There are *other* areas in which the bill runs counter to general industry practice, and in which it *extends* the hazard definition beyond that generally accepted by industry, by the Interstate Commerce Commission, and even by previously issued Food and Drug Administration decisions (on individual products).

If the regulations go through as proposed, the hardship to the aerosol marketer could be considerable—depending, of course, on what products he currently has to sell. Almost immediately, he will have to undertake revision of his package to bring it into strict compliance with the tough regulations. Dr. Emil G. Klarmann, head of the CSMA's Precautionary Labeling Committee, estimates that some 75 per cent of currently marketed chemical specialties products will require major or minor label revision.

What can the marketer do to soften the blow? For one thing, he has until June 28th to present his views in writing to the Hearing Clerk, Dept. of Health, Education and Welfare, 330 Independence Ave., W., Washington 25, D. C. The communication should be filed in quintuplicate and should show specifically how the regulation is unfair, unnecessary or how it will invoke hardship. Also, he may want to write his Congressman, who can have considerable influence on the final text of the regulations.

But above all the marketer should closely watch the developments, so that he won't be overly surprised if the tough regulations *do* become law. The more time the marketer has to prepare a good label, the better the label will be. ★

Compressed Gas Propellants for Non-Food Products

By Robert C. Webster
Manager
Customer Service Laboratory
Air Reduction Co.
Madison, Wis.

THE USE of the compressed gases in non-food aerosols has been quite limited in the past. The use of nitrous oxide or carbon dioxide in ethyl ether motor starters is probably the best known usage of these gases in non-food aerosols. With the so-called advent of nitrogen aerosols, a number of non-food products in a pressure can were packaged.

It is felt that the tremendous surge of enthusiasm for the use of nitrogen put the compressed gases as aerosol propellants back several years. Because of extremely low cost and inertness, nitrogen was tagged as the "wonder propellant." Suddenly, nitrogen-charged hair sprays, window cleaners, etc., appeared on the market. Many of these products failed miserably because of the slim margin between misuse and non-service. The failure of spray patterns, because of pressure drop resulting from virtual non-solubility, also contributed to the share of failures. Thus, all other compressed gases were in effect tagged with the failure brought about by nitrogen. The failures of container, product, etc., also contributed to the unfavorable view taken of the compressed gas aerosol, whether it be for food or non-food products.

There is virtually *no* record of failure with ethyl ether motor starters charged with either nitrous oxide or carbon dioxide. The first year's results with de-icer charged with carbon dioxide were excellent. Even the much maligned aerosol barbecue sauce, "Sizzl-Spray," had relatively few reported pressure or non-service failures because of misuse. In a recent editorial in *Aerosol Age*[1], it was reported that a consensus based on a few opinions stated that "compressed gas is the source of 90% of consumer complaints." "Consumer inadvertently vents vapor phase, leaving most of product in can," or "nitrogen causes enough pressure drop during use to give variations noticeable to consumer," or "customer could not use product properly." "It left too much product in can and too many complaints were received by store managers."

The reluctance of many to consider the compressed propellants can be attributed to statements like this. These statements result from a lack of undersanding of the techniques for using these gases. Nitrogen, if properly utilized, has certain applications as an aerosol propellant. Yet it is our contention, even as a major supplier of this product, that *the uses of nitrogen are limited in scope.* Certainly the dire need for non-aeration as advocated during the "nitrogen kick" has been disproved by the success of "Whiz," an aerated beverage mix.

It is felt that the lack of knowledge and understanding of the potential value of nitrous oxide and carbon dioxide as non-food aerosol propellants offers a real challenge. The purpose of this paper and the ones to follow is to hopefully break down possible prejudices against compressed gases and show the areas where they may be used successfully.

We shall deal only with nitrous oxide and carbon dioxide, and leave nitrogen to its relegated spot. Misuse factors, methods of packaging new products, and new packaging techniques shall each be evaluated. We feel that with proper understanding of these gases new doors for aerosol packaging will be opened.

Physical-Chemical Characteristics

A. *Nitrous Oxide*—Prepared commercially by the thermal decomposition of ammonium nitrate at a temperature of approximately 460° F., according to the reaction:

$$NH_4\ NO_3 \xrightarrow{\Delta} N_2O + 2H_2O$$

1. *Hydration*—Nitrous oxide can theoretically be considered as the anhydride of hyponitrous acid, $H_2N_2O_2$; while this acid is known, it cannot be produced by the interaction of nitrous oxide and water, even upon heating. When nitrous oxide is dissolved in water, the conductivity of the solution does not

TABLE I
PHYSICAL PROPERTIES OF COMPRESSED GASES
APPLICABLE AS AEROSOL PROPELLANTS

Physical Factor	*Name of Propellant* — *Nitrous Oxide*	*Carbon Dioxide*	*Nitrogen*
Chemical Symbol	N_2O	CO_2	N_2
Molecular Weight	44.016	44.010	28.016
Specific Gravity (Air = 1) 70° F., 1-ATM	1.532	1.5292	0.9670
Density LB./CU. FT. 70° F., 1-ATM	0.1148	0.1146	0.07247
Specific Volume CU. FT./LB. 70° F., 1-ATM	8.711	8.729	13.80
Norman Boiling Point, ° F.	—127.3	....	—320.45
Sublimation Temperature, ° F.	....	—109.17	....
Latent Heat of Evaporation, BTU-LB	161.78	....	85.67
Critical Pressure, Atmospheres, Abs.	71.70	72.292	33.49
Critical Pressure, Lbs./Sq. In., Abs.	1053.7	1071.7	492.2
Critical Temperature, ° F.	+97.700	+88.410	—232.870
Triple Point Temperature, ° F.	—131.456	—69.884	—346.027
Specific Heat Constant Pressure 70° F.	0.2095	0.2016	0.2484
Specific Heat Constant Volume, 70° F.	0.1609	0.1543	0.1774
Color	None	None	None
Odor	None	None	None
Taste	Slight (Sweet)	None	None

differ from that of pure water alone and the solution has the same acidity as that of pure water[2].

2. *Thermal Dissociation*—Nitrous oxide dissociates at high temperatures (approximately 1202° F.) to give nitrogen and oxygen according to the reaction:

$$2N_2O \xrightarrow{\Delta} 2N_2 + O_2$$

In the presence of certain metal oxide catalysts, nitrous oxide undergoes the same dissociation at lower temperatures, starting at approximately 662° F.

3. *Oxidation and Reduction* — While nitrous oxide is resistant to oxidation and reduction, it is in itself a mild oxidizing agent and will support combustion when mixed with flammable materials.

4. *Reaction with Metals* — Pure nitrous oxide does not react with common metals at ordinary temperatures. With copper, there is no reaction up to 392° F. Above 482° F., a slow formation of copper oxide takes place[4]. Iron (Fe) is oxidized by nitrous oxide at temperatures above 572° F. In all of these reactions nitrogen is liberated.

5. *Effect on Nylon and Rubber*—Tests conducted by Ohio Chemical & Surgical Equipment Co. show that nylon and rubber are unaffected by prolonged exposure to nitrous oxide. Nylon does, however, undergo decomposition in the presence of oxidizing acids such as nitrous acid and nitric acid formed from the higher oxides of nitrogen. Careful process control by Ohio Chemical insures the absence of these impurities in its product.

6. *Pharmacological Properties* — Nitrous oxide is considered without exception to be non-toxic and non-irritating. Collins[5] describes nitrous oxide as a colorless, inert gas which has a nut-sweet taste and odor. When inhaled without oxygen, it is a simple asphyxiant, in the same class as nitrogen, hydrogen, helium, methane, ethane, propane and acetylene[6]. When mixed with oxygen, the percentage of nitrous oxide must be more than 80% to produce anesthesia[7].

The Food & Drug Administration has approved nitrous oxide for use in certain food aerosols[8].

The physical properties of nitrous oxide are included in Table I.

B. *Carbon Dioxide* — Commercial production methods include: (1) combustion of carbonaceous materials; (2) calcination of limestone.

The most common method of production is to burn any fuel containing carbon. When burned in air, a gas is given off which contains carbon dioxide. The amount of carbon dioxide in the gas varies, but the concentration must exceed 10% to make extraction commercially worth while. The raw gas is cleaned by thoroughly scrubbing it with water and caustic solution. The clean gas is then passed through an alkaline solution of sodium carbonate, potassium carbonate or monoethanolamine, which absorbs most of the carbon dioxide. The absorbing agent is then heated to liberate pure carbon dioxide.

1. *Hydration*—Carbon dioxide has a high solubility in water and when dissolved it forms carbonic acid which is a weak and relatively unstable acid (pH 3.3 to 3.7, depending upon the solution pressure). Carbonic acid reacts with many chemicals, particularly alkalies such as magnesia, lime, caustic and carbonates of sodium or potassium.

2. *Thermal Dissociation*—Carbon dioxide dissociates at high temperatures (approximately 1200° F.) into carbon monoxide and free oxygen. The rate of dissociation is about 0.000025% at 1340° F., 21.1% at 3140° F. The reaction is reversible as the temperature drops.

3. *Oxidation and Reduction*—Carbon dioxide is resistant to oxidation and reduction, does not support combustion and, because of its weight, readily displaces air which does.

4. *Reaction with Metals*—At dissociation temperatures (1200° F. plus) carbon dioxide reacts with carbon and certain metals. The dissociation of carbon dioxide in water results in a decrease in pH; the pressure on the solution governs the

TABLE II
SOLUBILITY* OF COMPRESSED GASES IN WATER

Gas	P. ATM	Temperature (°C) 0	15	20	25	30	50	60
Nitrogen	1.0	0.0235	0.0168	0.0154	0.0143	0.0134	0.0109	0.0102
	20.0	....	....	....	0.0124	....	....	....
Nitrous Oxide	1.0	1.0954	0.7778	0.6700	0.5961	....	....	....
	6.6	....	....	0.6320	0.5500	....	....	....
Carbon Dioxide	1.0	1.713	1.019	0.878	0.759	0.665	0.436	0.359
	5.0	1.73	....	....	....	....	....	....
	10.0	1.60	....	....	....	....	....	....

* The solubility coefficient used above is defined as the number of ml. of gas reduced to 0° C. and 760 mm of mercury dissolved in one ml. of solvent at 1 atm and the designated temperature. The units of solubility are ml. (STP)/ATM-ml. To find the volume (standard conditions) of gas dissolved at any other pressure, the solubility coefficient is multiplied by the pressure in atmospheres. The reliability of measurements is estimated to be ± 5% for a solubility coefficient of 1.0.

degree of acidity. The higher the pressure, the greater the increase in acidity.

In a metal container, the decrease of pH in the presence of oxygen and water *increases* the can corrosion potential in a plain tin can. These three ingredients are necessary for the start and, hence, continuation of can corrosion.

5. *Pharmacological Properties* — Carbon dioxide has been classified as a Group 5 toxicity. This is comparable to propellant 11 and methylene chloride. It falls between Group 6, which has a limit of 20% for two hours — no injury, and Group 4, which has a limit of 2.5% for two hours—serious injury. Because it is heavier than air, it clings to the floor or lower regions of a room. Excess concentrations (5% or greater) can cause asphyxiation. With proper use, carbon dioxide represents no hazard.

Carbon dioxide has a "GRAS" approval by the Food & Drug Administration.

The physical properties of carbon dioxide are included in Table I.

Solubility Characteristics

The physical factor that is of *most* importance to the application of the compressed gas is solubility. Nitrogen was first considered for food aerosol packaging because it applied to non-aerated dispensing, aeration being relative to solubility of the gas in the product. Nitrous oxide is quite soluble in both the oil and water phase of a whipped cream and with proper valving, yields a foamy or aerated product.

The basic solubility of the compressed propellant dictates the propellant (or propellant mixture) that must be used to achieve the desired end product form and dispensing state. The proper understanding of solubility and temperature - pressure relationships is vital if proper equilibrium pressure characteristics are to be achieved.

As can be readily understood, the maintenance of a proper solubility relationship with regards to pressure-temperature factors is vital if a high percentage of product removal is to be accomplished. An undercharge or low initial can pressure results in a high percentage of product retention. An overcharge results in improper performance and, in certain cases, failure of the container structure.

The final solubility of the common compressed propellants in a liquid is dependent upon pressure and temperature. The greater the pressure, the greater the solubility. The lower the temperature, the higher the solubility. The solubility of the common compressed gases in water is shown in Table II.

The solubility of carbon dioxide and nitrous oxide in certain organic solvents is shown in Table III[9].

The use of nitrous oxide or carbon dioxide in a solvent with high solubility characteristics yields excellent container performance. The

TABLE III
SOLUBILITY OF VARIOUS GASES IN ORGANIC LIQUIDS

Compound	Nitrous Oxide	Nitrogen	Carbon Dioxide	Argon
Water	0.6	0.016	0.82	0.03
Acetone	5.3	0.15	6.3	0.03
Acetic Acid	4.5	0.12	4.7	...
Pyridine	3.4	...	3.6	...
Methyl Alcohol	3.2	0.14	3.8	0.27
Ethyl Alcohol	2.8	0.14	2.6	0.26
Benzaldehyde	3.0	...	2.8	...
Aniline	1.4	0.03	1.3	...
Amyl Acetate	4.9	0.15	4.1	...
Ethylene Bromide	2.7	...	2.1	...
Isoamyl Alcohol	2.4	...	1.8	...
Chloroform	5.2	0.13	3.4	...
Cyclohexanol	0.23	...	...	0.11
Glycerol	1.20	...	0.03	...
Carbon Disulfide	...	0.06	0.87	...
Nitrobenzene	...	0.06	...	...
Benzene	...	0.12	2.40	0.22
Xylene	...	0.12	2.15	...
Toluene	...	0.12	1.80	...
Amy Alcohol	...	0.12	2.30	...
Ethyl Acetate	...	0.17	...	...
Isobutyl Acetate	...	0.17	...	...
Methyl Acetate	...	0.18	6.5	...
Carbon Tetrachloride	4.28	0.148	4.15	...
Petroleum Distillates	2.10	0.109	...	...
Ethylene Chloride	3.20	...	3.23	...
Isobutyl Chloride	...	...	2.84	...
Mineral Oil	...	0.071	...	...
Heavy Naphtha	...	0.10	...	...

degree of solubility of the gas in the solvent directly relates to the pressure drop and, hence, performance of the container during use. The pressure drop of an aerosol powered with a propellant of low solubility characteristics is generally *more* pronounced than that of a more soluble propellant. The pressure drop curves in Figures I and II illustrate the above. For example, Curves 1 and 2 of Figure I show the effect of solubility upon pressure drop during usage. Water is used as the active phase. Nitrous oxide has a relatively high solubility in water, while nitrogen has a low solubility. The total pressure drop during usage with a high solubility relationship is only 40 psig, while the pressure drop in a nitrogen charged water is in excess of 60 psig. The same relationship can be seen from examination of Curves 3 and 4. The pressure differentials in drop during usage are not as pronounced in these curves where a water based system is used due to a relative decrease in solubility of both gases in water.

A further comparison of pressure drop to misuse of compressed gas aerosols will be illustrated in Section IV—*Misuse Factors of Compressed Gas Non-Food Aerosols.* Also related to the misuse factors will be temperature - pressure relationships of compressed gas aerosols.

Misuse Factors

During the past few years, one of the most severe criticisms of compressed gases was their potential weakness if the container was subjected to any misuse. This was especially true in the food aerosol field. Many stated that food aerosols were doomed to failure if charged with compressed gases. Any misuse of the container on the part of the housewife would result in only partial removal of product.

Unfortunately, this statement is completely true with *nitrogen charged aerosols.* Examination of solubility factors in Table III clearly illustrate this. Because of extremely low solubility, nitrogen serves primarily as a pressure piston to force the product in the non-aerated state from the container. Thus, accidental discharge of the headspace gas by misuse markedly reduces the service life of the container.

It has long been the contention of those familiar with the advantages and, of course, limitations of the more soluble compressed gases, such as nitrous oxide and carbon dioxide, that misuse was much less of a critical factor. A series of experiments and evaluations on misuse of food and non-food aerosols charged with these two gases had been underway for several years.

FIGURE I

Relationship of various degrees of fill to pressure drop and product retention of water(80°F) charged with nitrogen to 90 psig dispensed at 10 sec. intervals

1. ● Fill of 4 fl. oz.—2.10 grams N_2—0.87% product retention 52 psig
2. ◇ Fill of 6 fl. oz.—1.25 grams N_2—0.85% product retention 46 psig
3. ■ Fill of 8 fl. ox.—1.10 " —0.96% " 36 psig
4. ✕ Fill of 10 fl.oz.—0.75 " —1.66% " 19 psig
5. • Fill of 12 fl.oz.—0.35 " —4.73% " 0 psig

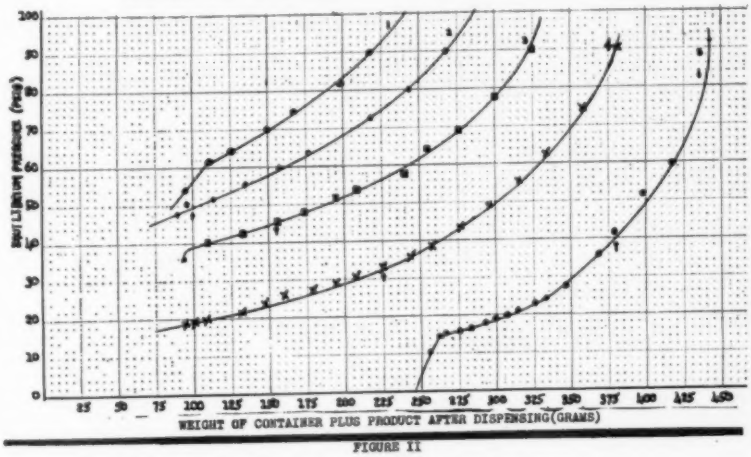
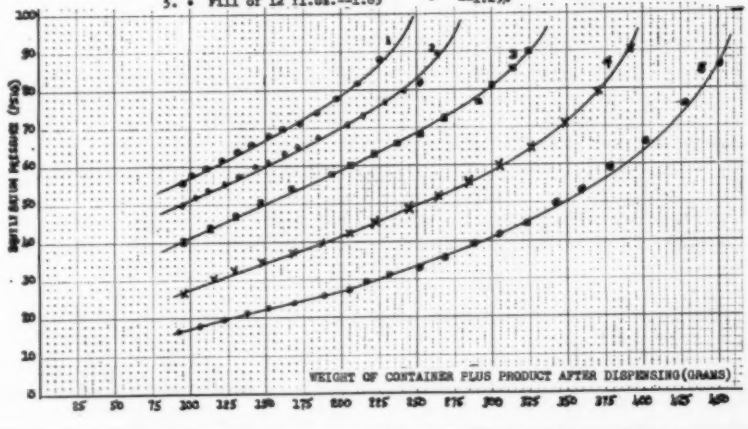


FIGURE II

Relationship of various degrees of fill to pressure drop and percent product retention of water(80°F) charged with nitrous oxide (90 psig) dispensed at 10 sec. intervals

1. ◇ Fill of 4 fl. oz.—4.20 grams N_2O—0.88% product retention
2. ◇ Fill of 6 fl. oz.—3.95 grams N_2O—0.88% "
3. ■ Fill of 8 fl. oz.—3.45 " —0.92% "
4. ✕ Fill of 10 fl.oz.—2.65 " —1.28% "
5. • Fill of 12 fl.oz.—1.85 " —1.29% "



For the purpose of this article we shall deal only with non-food aerosols. Two typical products were used in this experiment. De-icer was charged with carbon dioxide to an equilibrium pressure of 85-90 psig at 70° F. A furniture polish was charged with nitrous oxide to an equilibrium pressure of 85 psig at 70° F. Replicates of three cans each of both products were subjected to the following misuse treatment:

1. *Cans* 1-3
   a. Dispensed upright for 10 seconds. Pressure recorded.

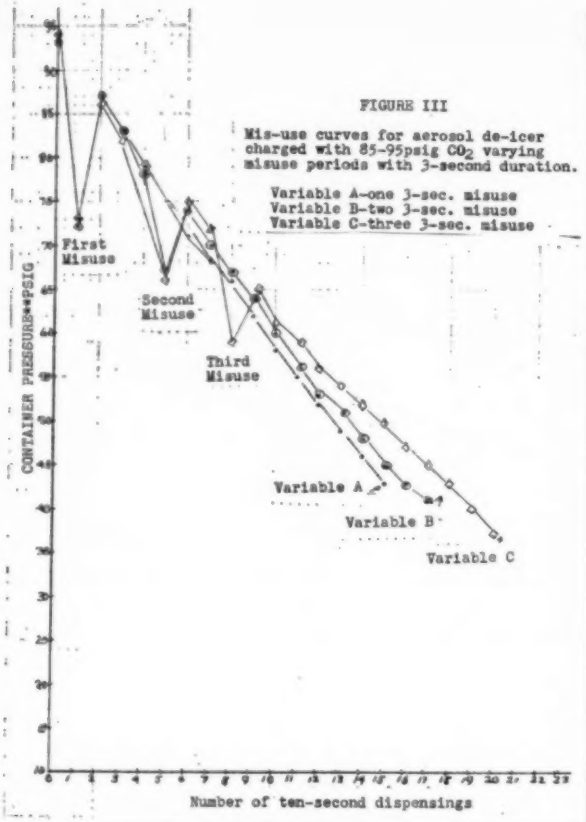


FIGURE III

Mis-use curves for aerosol de-icer charged with 85-95psig CO_2 varying misuse periods with 3-second duration.

Variable A-one 3-sec. misuse
Variable B-two 3-sec. misuse
Variable C-three 3-sec. misuse

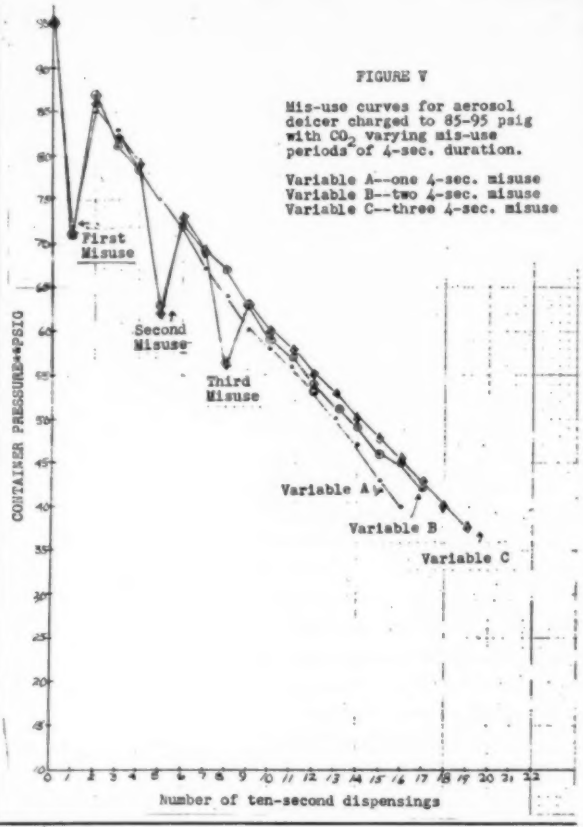


FIGURE V

Mis-use curves for aerosol deicer charged to 85-95 psig with CO_2 varying mis-use periods of 4-sec. duration.

Variable A--one 4-sec. misuse
Variable B--two 4-sec. misuse
Variable C--three 4-sec. misuse

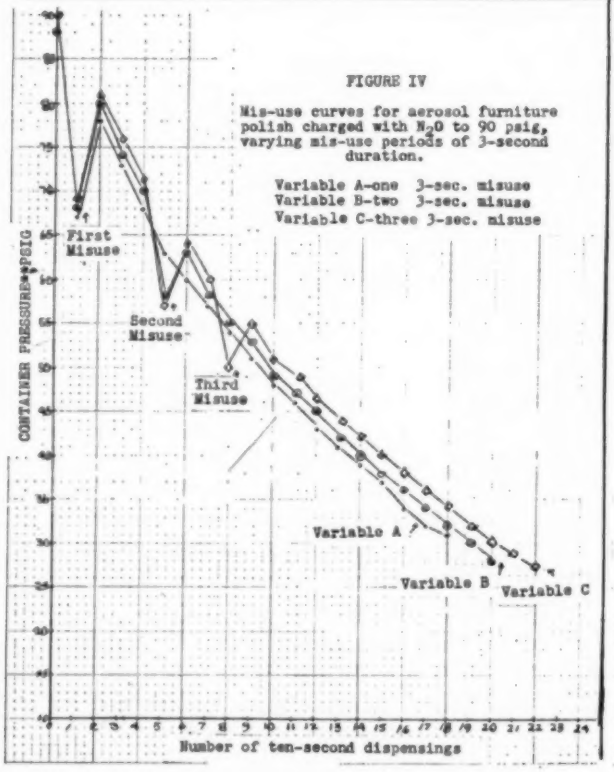


FIGURE IV

Mis-use curves for aerosol furniture polish charged with N_2O to 90 psig, varying mis-use periods of 3-second duration.

Variable A-one 3-sec. misuse
Variable B-two 3-sec. misuse
Variable C-three 3-sec. misuse

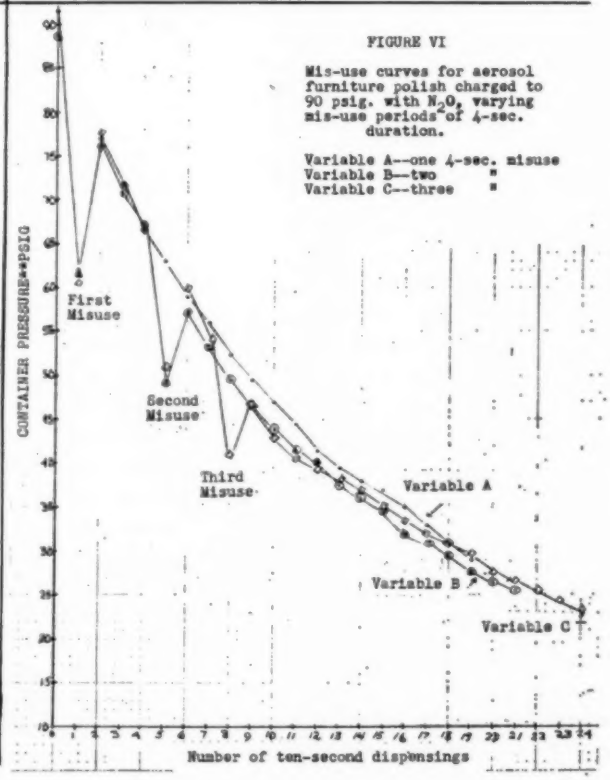


FIGURE VI

Mis-use curves for aerosol furniture polish charged to 90 psig. with N_2O, varying mis-use periods of 4-sec. duration.

Variable A--one 4-sec. misuse
Variable B--two "
Variable C--three "

b. Can inverted and misused for two seconds.
c. Can shaken for 10 seconds and pressure recorded.
d. Can dispensed normally at 10-second intervals until contents expended. Pressure recorded after each 10-second dispensing. Total misuse—two seconds.

2. *Cans* 4-6
a. Dispensed upright for 10 seconds. Pressure recorded.
b. Can inverted and misused for two seconds.
c. Can shaken for 10 seconds and pressure recorded.
d. Can dispensed normally for two 10-second usages. Pressure recorded.
e. Can inverted and misused for two seconds.
f. Can shaken for 10 seconds and pressure recorded.
g. Can dispensed normally at 10-second intervals until contents expended; pressure recorded after each 10-second dispensing. Total misuse — four seconds.

3. *Cans* 7-9
a. Dispensed normally for 10 seconds. Pressure recorded.
b. Can inverted and misused for two seconds.
c. Can shaken for 10 seconds and pressure recorded.
d. Can dispensed normally or upright for two 10-second usages: shaken and pressure recorded.
e. Can inverted and misused for two seconds.
f. Can shaken for 10 seconds and pressure recorded.
g. Can used normally or upright for 10 seconds. Pressure recorded.
h. Can inverted and misused for two seconds.
i. Can shaken, pressure recorded and then dispensed normally at 10-second intervals until contents expended; pressure recorded after each 10-second dispensing. Total misuse—six seconds.

The above technique was also conducted, using three-second and four-second misuse factors as outlined above. The most severe misuse applied to each product was three four-

(*Continued on Page* 85)

THE SAMPLE SHELF

By Jerome N. Michell
vice president
The Walter Frank Organization
Hillside, Ill.

WE would like to dewll this month on the vast number of aerosol products that are virtually unknown by any particular brand name, or whose brand name alone would have very little meaning in the highly competitive self-service markets of today.

In May, we pictured a toothpaste and a shaving cream as examples of brand domination, and commented on the design techniques employed by the two brands.

Here we illustrate two products that shout strong and clear *what* they are, instead of *who* they are. There is no mistaking Spray Paint on the Plasti-Kote can, and this is smart presentation. At the risk of offending the company's pride in its name, no-one will dispute that there are many far better known brand names of paint than Plasti-Kote. Therefore, the company would be fighting a much more difficult battle for identity of brand if they had chosen to feature the brand instead of the product.

Similarly, the toothpaste can by Sears, Roebuck is an intelligently planned design. Big as Sears is, the company is well aware of the futility of fighting the dominant, highly-advertised brand names of toothpaste, so they don't try. The Sears name is a guarantee of reliability to any customer, and the name to shout is Tooth Paste.

Neither of these products—nor many more in similar positions—has sacrificed design or appeal in using this approach. In fact, they have enhanced the sales appeal of their products by recognizing their marketing problems.

It is unfortunate that hundreds of other aerosols have either failed to realize indentical situations or are so infatuated and enamored with the appearance and the sound of their own brand names—no matter how poor—that they refuse to change.

Of course this is not addressed to a DuPont, a Johnson's Wax, a Helene Curtis, a Revlon, a Boyle-Midway, a Colgate, a Shulton, or any other big marketer whose name alone can carry an item, or who have spent the necessary millions to make a brand name a demand item.

It *is* pointed at both small and large companies that have neglected to consider their true positions in the market place.

Here is virtually an infallible rule to follow in judging your aerosol design:

"If you are not *absolutely certain* that the customer can identify your product by brand name alone, then subordinate the brand name, and strongly emphasize the product name."

Remember that most people close to a product will tend to exaggerate the importance of their own names, because of familiarity and daily contact. They are shocked when market research reveals that the preponderance of buyers never heard of their product. Don't let it happen to you!★

Aerosol Production Continues Strong Despite '60 Recession

DESPITE a generally slack business period last year, production of non-food aerosols rose to an all-time high of 670 million units, or a gain of 17% over the previous total of 575 million recorded in 1959. These figures were revealed in the Tenth Annual Survey of Aerosol Pressure Products reported at the 47th midyear meeting of the Chemical Specialties Manufacturers Association in Chicago May 15-17. The 670 million units in 1960 was estimated to have had a total retail market value of $870 million, which with a figure for food aerosols generally estimated to be in the vicinity of 100 million, brings the total aerosol dollar volume very close to $1 billion.

This survey, which is analyzed closely by aerosol and other packaging executives for product trends and for an estimate of the general health of the industry, revealed some surprising gains for the industry. Although the 17% gain was less than the 1959 gain of 22% (over 1958), or the 20% gain of 1958 over 1957, it amounted to a more accurate reporting than either of the previous two surveys (because of a higher response percentage) and because of the higher total, amounted to a more substantial unit gain over the previous year.

Hair sprays and dressings, the leading aerosol product for the past several years, once again held its lead in total number of units produced, and in fact racked up a gain of 40% over the 1959 figure. This was generally attributed to two factors; more accurate production figures because of additional reporting companies, a renewed public confidence in hair sprays in the wake of a slight product slump blamed on the later-disproved cancer-scare story regarding these products which received publicity during the 1958-1859 surveys.

While hair sprays accounted for 17% of the total production, and in fact extended its lead over competing products, the room deodorant and insect spray categories, chief challengers for several years, also finished strongly, each garnering about 12% of non-food aerosol production in 1960. Shaving lather, another perennial leader, saw its total remain the same, but because of a large gain in the sale of the 16-ounce size, actual pounds of shave creams produced were considerably greater.

The complete figures for 1960 are given on facing page, those for 1959 on page 28.

In percentage gains over the previous year's figures, two specially strong "movers" were waxes and polishes, up more than 35%, and paints and coatings, up 25%. Colognes and perfumes continued their healthy rise, with a gain of 15%, most of it in the one-ounce or smaller container of metal, glass, or plastic. Two entirely new categories—aerosol starches, with production of 25 million units, and deicers, with 14 million units, were listed separately for the first time in the 1960 survey because of sharply rising sales figures during last year.

Because of the best response percentage in the history of the survey (128 firms reporting out of 216 polled, as against the '59 figure of 115 of 217) the container and fillers figures coincide very closely. Also, the adjustments made annually to "make up" for those companies not reporting were just a few percentage points away from the reported total. The Survey Committee, headed by E. E. Husted, of Union Carbide Chemicals Co., adjusted the following categories upward as follows:

	Million
Insect Spray	15
Coatings, Paints	1
Room Deodorants	15
Hair Sprays	5
Medicines	2
Colognes	3
Glass Cleaners	2
Shoe & Leather Dressings	2
Starches	5
Soaps	7
All other	6

Canadian aerosol production, included in the survey for the second year as a separate report, was estimated to have been over 25 million units in 1960, as against a 1959 figure of 20 million.

The survey's one attempt to obtain figures for the food field brought up a somewhat disappointing figure of 59½ million containers sold and purchased for food packaging. This figure was the result of a question asked in the survey of container manufacturers. Aerosol experts suggest that

(*Continued on Page* 84)

SURVEY OF AEROSOL AND PRESSURIZED PRODUCTS FILLED IN 1960
(NON-FOOD PRODUCTS ONLY)
CHEMICAL SPECIALTIES MANUFACTURERS ASSOCIATION

Number of units by the sizes indicated for each of the products listed, filled by 128 companies in their own plants in 1960.

PRODUCT	NUMBER OF UNITS FILLED				
	Glass & Plastic Containers All Sizes	Metal Containers 16-Ounce But Over 12	Metal Containers 12-Ounce But Over 6	Metal Containers 6-Ounce And Less	Total
INSECT SPRAYS					
1. Space Insecticides	†	15,414,461	21,250,753	452,961	37,118,175
2. Residual Insecticides all Types (such as roach and ant sprays, insect repellents, plants, etc.)	†	11,318,768	8,283,297	5,897,230	25,499,295
3. Mothproofers (includes all fabric pests)	†	1,765,154	3,086,041	†	4,851,195
COATINGS and (or) FINISHES					
4. All Types (Pigmented, Metallic, Clear Plastic, Protective and Decorative, etc.)	†	44,330,733	12,598,020	10,277,791	67,206,544
HOUSEHOLD PRODUCTS					
5. Room Deodorants	†	7,365,827	19,497,022	39,892,021	66,754,870
6. Snow all Types	-o-	5,246,843	2,091,778	614,129	7,952,750
7. Glass Cleaners	-o-	16,845,539	832,447	†	17,677,986
8. Shoe or Leather Dressings	†	†	1,586,889	13,787,802	15,374,691
9. Waxes and Polishes (household and automotive)	†	12,518,980	22,573,424	5,111,661	40,204,065
10. Starches	2,008,168	13,986,594	3,801,713	†	19,796,475
11. Other Household Products all Types (such as metal, oven, rug and upholstery cleaners; water repellents, etc.)	†	3,388,303	4,592,782	1,071,875	9,052,960
PERSONAL PRODUCTS					
12. Shaving Lather	†	2,506,908	19,579,415	46,088,108	68,174,431
13. Hair Sprays and Dressings	1,891,229	39,429,557	35,329,333	35,211,140	111,861,259
14. Dental Cream	†	-o-	2,784,968	†	2,784,968
15. Medicinals and Pharmaceuticals (such as fungicides, burn treatments, topical antiseptics, oral medicinals, anesthetics, antibiotics, etc.)	2,524,668	87,618	615,727	8,548,823	11,776,836
16. Colognes and Perfumes					
(a) Over one ounce	19,018,940	xxxxx	xxxxx	8,732,276	27,751,216
(b) One ounce and under	4,896,015	xxxxx	xxxxx	6,373,287	11,269,302
17. Other Personal Products (such as shampoos, sun tan preparations, personal deodorants, sachets, hand lotions, powders, depilatories, etc.)	†	†	568,005	9,513,199	10,081,204
MISCELLANEOUS					
18. Veterinarian and Pet Products (such as shampoos, deodorants and insecticides, etc.)	†	346,229	3,623,896	740,811	4,710,936
19. De-Icers	†	10,617,185	3,309,151	280,642	14,206,978
20. Miscellaneous Products (such as mildew preventative, fire extinguishers, automotive (other than reported in categories 4, 9 and 19), industrial lubricants and any others.)	†	5,436,155	6,769,432	2,514,251	14,719,838
† Total of categories which are too revealing to be released	12,562,655	1,431,490	-o-	4,172,251	18,166,396
TOTALS	42,901,675	192,036,344	172,774,093	199,280,258	606,992,370

† Too revealing to be released. Included in total.

Product Survey (Continued) . . .

SURVEY OF AEROSOL AND PRESSURIZED PRODUCTS FILLED IN 1959
(NON-FOOD PRODUCTS ONLY)
CHEMICAL SPECIALTIES MANUFACTURERS ASSOCIATION

Number of units by the sizes indicated for each of the products listed, filled by 115 companies in their own plants in 1959.

PRODUCT	NUMBER OF UNITS FILLED				
	Glass Containers All Sizes	Metal Containers 16-Ounces But Over 12	Metal Containers 12-Ounce But Over 6	Metal Containers 6-Ounce And Less	Total
INSECT SPRAYS					
1. Space Insecticides	-o-	16,621,048	20,741,202	1,388,398	38,750,648
2. Residual Insecticides all Types (such as roach and ant sprays, insect repellents, plants, etc.)	-o-	7,356,331	10,618,053	3,531,698	21,506,082
3. Mothproofers (includes all fabric pests)	-o-	1,636,750	3,955,574	61,720	5,654,044
COATINGS and (or) FINISHES					
4. All Types (Pigmented, Metallic, Clear Plastic, Protective and Decorative, etc.)	-o-	36,570,326	9,636,131	6,349,379	52,555,836
HOUSEHOLD PRODUCTS					
5. Room Deodorants	†	4,598,583	19,372,672	35,752,334	59,723,589
6. Snow all Types	-o-	4,197,129	4,040,643	721,409	8,959,181
7. Glass Cleaners	†	16,919,284	1,350,040	200,888	18,470,212
8. Shoe or Leather Dressings	†	1,955,991	2,528,975	9,254,103	13,739,069
9. Waxes and Polishes (household and automotive)	†	7,209,699	*	4,633,739	11,843,438
10. Other Household Products all Types (such as metal, oven, rug and upholstery cleaners; water repellents, etc.)	†	4,292,153	19,895,384	410,372	24,597,909
PERSONAL PRODUCTS					
11. Shaving Lather	-o-	306,138	20,352,663	51,952,158	72,610,959
12. Hair Sprays and Dressings	†	22,360,817	26,128,270	31,198,387	79,687,474
13. Dental Cream	-o-	††	††	11,241,523	11,241,523
14. Medicinals and Pharmaceuticals (such as fungicides, burn treatments, topical antiseptics, oral medicinals, anesthetics, antibiotics, etc.)	3,329,752	††	426,829	6,279,731	10,036,312
15. Colognes and Perfumes, (a) Over one ounce	18,586,393	xxxxx	xxxxx	9,798,833	28,385,226
(b) One ounce and under	2,211,201	xxxxx	xxxxx	3,481,034	5,692,235
16. Other Personal Products (such as shampoos, sun tan preparations, personal deodorants, sachets, hand lotions, powders, depilatories, etc.)	666,622	542,704	3,239,335	7,792,977	12,241,638
MISCELLANEOUS					
17. Veterinarian and Pet Products (such as shampoos, deodorants and insecticides, etc.)	-o-	286,749	2,727,994	1,098,282	4,113,025
18. Miscellaneous Products (such as mildew, fire extinguishers, automotive (other than reported in categories 4 and 9), industrial lubricants and any others.)	-o-	6,167,350	10,062,705	1,783,457	18,013,512
† Total of Glass Categories which are too revealing to be released	466,031	-	-	-	466,031
TOTALS	25,259,999	131,021,052	155,076,470	186,930,422	498,287,943

† Too revealing to be released. Included in total.
* Too revealing to be released. Included in 10, Other Household Products all Types.
†† Too revealing to be released. Included in 16, Other Personal Products.

Top: Pete Clapp (Western Filling), Bob Ackerly (CSMA counsel), and John Buchanan (Continental Can); Ralph Dorland (Aerosol Age), Gordon Lang (Conn. Chem. of Canada) and John Hulten (Carbide); George Kerbey (Fairfield Chem.), Charles Beach (Stalfort) and Paul Torpin (MGK).

Bottom: Dick Reavey (Breck), Fred Presant (ATI), and Otto Weil (Aerosol Research); Don Whyte (S. C. Johnson), Lloyd Flanner (Gen. Chem.) and L. M. Sesso (Johnson); Len Baer (Precision), Jim Gottlieb (JG Machine) and Carter LeBeau (Kartridg-Pak).

CSMA Meeting Report

Hazardous Labeling Bill Attracts Main Concern of CSMA Meeting

ALTHOUGH it is usually well nigh impossible to pick out a central theme or a subject which occupies the major time of a convention with a registration as high as 920, there was little doubt at the 47th midyear meeting of the Chemical Specialties Manufacturers Association last month that the New Proposed Regulations to the Federal Hazardous Substances Labeling Act occupied the prime attention of nearly every division, a good share of the meeting time, and much of the non-scheduled time. The meeting rooms, corridors, and even elevators of the Hotel Drake, where the meeting was held May 14-17, echoed with arguments, expressed indignation, and even outrage at the severity of the proposed regulations, which could become law by August 1 if they are not altered in the meantime.

So far as the official views of the CSMA are concerned, these were expressed fairly succinctly by Dr. Emil G. Klarmann (of Lehn & Fink Products Corp.), chairman of the CSMA's Precautionary Labeling Committee. In an address to the Wednesday, May 17, general membership session, Dr. Klarmann warned that the proposed regulations could bring about extensive and potentially undesirable overlabeling which could only harm the whole basic approach to labeling. "If these regulations are promulgated in their present form," he declared, "they could *weaken* rather than strengthen the campaign to educate users of household products to the risks of careless handling or use of hazardous household products by ultimately generating an *indifference* to cautionary labeling information.

The purpose of the act, he pointed out, is to make sure every product presenting a hazard of substantial injury or illness under reasonably anticipated conditions of use should be appropriately labeled. There was no strenuous objection on the part of industry to this, he said, since the industry generally recognized its obligation to the consumer. However, "if all substances were included which would qualify as 'toxic,' according to the prescribed animal tests (in the regulations), we would be faced with the need for cautionary labeling of as much as 75% of all household products."

Among the CSMA's specific objec-

Straight from General

ANOTHER FLEET OF PROPELLANT TANK TRUCKS...PACKED WITH "GENETRON" POWER!

Chemical to you...

trailers equipped with unloading pumps for customer service; plant scale expedites weighing of full loads and return heels.

Here is part of General Chemical's big new white fleet of "Genetron" propellant tank trucks serving eastern aerosol marketers and fillers.

This equipment is *company-owned* and *operated* to assure the best possible customer service, not only day in, day out, but especially in emergencies when hours count!

Our own employee drivers are at the wheel, too. Thus, you also get maximum flexibility in deliveries plus close personal attention to your unloading requirements.

Comparable service is offered out of our "Genetron" facilities at Danville, Ill.; Baton Rouge, La.; and El Segundo, Calif. More good reasons why "Genetron" propellants are first choice of so many leading aerosol fillers and marketers coast to coast. If you're not already familiar with "Genetron" propellant quality and service, find out now!

Allied Chemical

GENERAL CHEMICAL DIVISION

40 Rector Street, New York 6, N.Y.

Give your aerosol insecticides EXTRA SALES APPEAL with Givaudan fragrances

Today's modern trend in consumer preferences demands a pleasant as well as functional insecticide and mothicide. A Givaudan fragrance — custom-made to fit your particular needs — will give your products that *extra* sales appeal that is so important.

As the largest producer of perfume materials in America, Givaudan maintains special laboratories devoted exclusively to the development of new and finer aerosol fragrances and the solution of problems in aerosol perfuming.

Our staff will gladly recommend, adapt or custom-tailor a fragrance that will give your aerosol insecticides a fresh, distinctive appeal in this fast-growing, highly competitive market.

GIVAUDAN-DELAWANNA, INC.
321 West 44th Street, New York 36, N. Y.

tions to the proposed regulations, Dr. Klarmann pointed out, are these:

1. In the definition of "containers," the meaning has been extended to include anything found in an apartment building, including janitorial and other supplies never found in the household.
2. The regulations requiring the signal word ("Warning," "Caution," "Danger," etc.) on the front panel of the package, in at least 30 point type (or if smaller the size of the largest type on the package) will mean, in effect, he said, that we will be selling mainly the "signal word."
3. Classification of several commonly used product ingredients (turpentine, kerosene, methyl alcohol, etc.) as "highly toxic" so that they will require the word "Poison" on the front panel of the label. This, he contended, ran counter to generally accepted industry practices and accumulated knowledge of the toxicity of these materials.
4. The general suggestion given by the regulations that products covered by other laws may have their test methods altered to bring them into compliance with the law. As evidence of this he cited the classification of oil of bergamot, a cosmetic perfume, as a "strong sensitizer."
5. The general approach of the regulations to go "beyond the spirit" of the original law.

Dr. Klarmann indicated that the CSMA's Hazardous Labeling Committee, and possibly some of the divisions of the association, plans to present a strong statement to the Food and Drug Administration pointing out its objections to the proposed regulations. He said the statement will highlight the industry's history and experience in the field, and urge against the imposition of a set of mandatory labeling requirements which are deemed "contrary to the spirit and the purposes of the governing statute."

A similarly strong objection was raised in the meetings of the Aerosol Scientific Committee and the Aerosol Division Executive Board. From these

(*Continued on Page* 85)

CSMA
PUBLICATION
POLICY
EXAMPLES OF PRECAUTIONARY LABELING FOR HAZARDOUS HOUSEHOLD
PRODUCTS AS DEVELOPED AND USED OVER THE YEARS BY C.S.M.A. MEMBERS

Robert Ackerly (of the CSMA Counsel's office) and George T. Scriba (Union Carbide) flank Dr. Emil Klarmann (Lehn & Fink). The three made up a panel on the Hazardous Substances Labeling Law during which it was pointed out that most of the well-labeled packages (lower photograph) would probably have to be changed if the new proposed regulations become law.

From left: K. W. Burke (Lenk), Gordon Gilroy (Precision Valve), and Walter Apschnikat (Lenk); C. Gardner (Sterling Seal), Clarence Carter (Continental Filling) and R. J. Beck (S. C. Johnson); Curt Hollopeter (Owens-Illinois) and Roy Ferry (Schrader).

Top row: Ed Green (Newman-Green) and Ralph Legate (Aerocide Dispensers); Fred Taylor (Lehn & Fink), Earl Graham (Clayton), Ed Young (Du Pont) and John Jackson (American Can); Rusty Husted (Carbide), Russ McGhie (Colgate) and Jerry Froot (McLaughlin Gormley King)

Second row: Sig Was (Emson Research) and Ted Herst (Foster-Forbes), R. Locantore (Fluid Chemical), Seth Schnaible (Crown), Joe Pizzurro (Precision), Tony Hersh (Boyle-Midway) and Victor DiGiacomo (Givaudan-Delawanna); Maurice Spiegal and H. K. Rosenbaum (LaMaur) and Don Menhennett (Eveready Products).

Third Row: Larry Hall (Du Pont), Chris Canaday (Continental Filling), and N. W. Kent (Du Pont); M. E. Hernandez (Colgate), Leroy Keast (Karl Kiefer), and Bill Wellman (Colgate); Don Beardsworth (Risdon) and Sylvan Lefcoe (Par Industries).

Bottom Row: Al Marks (Wheaton) and John Rodda (Fairfield Chem.); Walter Apschnikat and Herman Lane (Lenk) and Jim Gottlieb (JG Machine); Gus DeVera (Fluid Chemical) and Stan Goldberg (Aerosol Research).

All this for me?

Yes . . . this is one of the laboratories where we test new IFF fragrances "in the product" to be sure they are technically as well as aesthetically correct.

WONDERFUL WORLD OF FRAGRANCE

Service facilities, such as this Cosmetic Laboratory at IFF, New York, fully test newly-created perfumes and aromatic materials for shelf-life and compatability in all types of consumer products where fragrance is a factor.

In addition to the imaginative artistry of the perfumer, the creation of a successful new fragrance requires a thorough technical understanding of its use in the product for which it is produced. It is only with such thoroughness that truly outstanding perfumes can be developed to assure your new product effective and lasting sales appeal.

iff

VAN AMERINGEN-HAEBLER • POLAK & SCHWARZ

INTERNATIONAL FLAVORS & FRAGRANCES INC.

521 West 57th St. • New York 19, N.Y.

Creators and Manufacturers of Flavors, Fragrances and Aromatic Chemicals

ARGENTINA AUSTRIA BELGIUM BRAZIL CANADA ENGLAND FRANCE GERMANY HOLLAND ITALY NORWAY SOUTH AFRICA SWEDEN SWITZERLAND U.S.A.

METADELPHENE® to help military protect personnel from mosquitoes and other biting pests...

A recent U.S. military bid for an all-purpose insect repellent is being filled with Metadelphene (Hercules diethyltoluamide, or deet*). Deet is now specified by the military as the new standard all-purpose insect repellent, replacing the older triple mix material.

Deet, a complete repellent in itself, offers greater protection from a wider range of biting pests than the formerly used combination of three repellent compounds. In addition, deet provides the military superior resistance to wiping action and sweating as well as an amazing ability to withstand the effect of water rinsing that servicemen might encounter during exposure to heavy rainfall and while fording streams.

This same material, selected by the military to protect servicemen under the most extreme field conditions, is available for your commercial preparations. In addition to its proved effectiveness, Metadelphene does not leave a greasy film on the skin. No other insect repellent need be added to Metadelphene—no other chemical or combination of chemicals can approach its performance. Metadelphene *in itself* is the *complete insect repellent!*

*"deet" is the common name officially adopted by the Entomological Society of America for the meta isomer of diethyltoluamide

METADELPHENE

...a product of Agricultural Chemicals Division

HERCULES POWDER COMPANY
INCORPORATED

Hercules Tower, 910 Market St., Wilmington 99, Del.

ND61-1

From left: Harry Isacoff (Int. Flavors & Fragrances) and Roy Ferry (Schrader); Rocco Locantore (Fluid Chemical), Ray Shinn (Crown Cork), and Tony Iannacone (Fluid); Saunders Craige (Peerless Tube) and Ralph Minervino (Metal Fabrications).

CSMA Meeting Report

Canadian Researchers Report New Work on Product Compatibility with Aluminum

"AFTER a period of time as short as one to four weeks, it is possible to estimate the long-term performance of aluminum in various media or environments," R. M. Howe and F. M. Languedoc of Connecticut Chemicals (Canada), Ltd., Toronto, said in a paper on "Compatibility, with Aluminum, of a Number of Chemicals Used in the Aerosol Industry," given before the Aerosol Division of the CSMA in Chicago on May 17.

The authors pointed out that this estimation is based "particularly on the type of corrosion. There are forms of corrosion which are dangerous from the standpoints of perforation or generation of quantities of hydrogen. There are other forms which, while probably objectionable from certain standpoints, are *not* likely to cause can failure over long use periods."

For a six months' storage test using Peerless-type aluminum cans, it was reported that although methylene chloride does produce corrosion (in aluminum cans) with a moisture content upwards of 500 parts per million, "the addition of propellants to this chemical reduced the tolerance for water, but the commercially anhydrous formulation produced no corrosion of can or cup within the six months' hot or room temperature storage."

The authors reported that propellant mixtures 11/12 and 11/12/114, "without any additions, did not cause attack of the aluminum in the commercially anhydrous state. The addition of 0.5% water caused wide shallow etching after one week at 100° F., but did not cause any perforation within the six-month storage time at either temperature.

"The Chlorothene - propellant 12 mixture in the commercially anhydrous state causes no attack of can

(*Continued on Page* 80)

Higher Percentage Powder in Aerosols Reported

MATHEMATICAL calculations of the interstitial, or void, volume between particles will make it possible to increase the percentages of active ingredients in powder aerosols, declared Daniel C. Geary of Union Carbide Chemicals Co., New York, in a paper on the subject delivered to the Aerosol Division at the CSMA Midyear meeting in Chicago. Prepared jointly by Mr. Geary and R. D. West, also of Union Carbide, the paper pointed out that "if the void volume is either filled with, or enlarged by, substances which prevent the particles from agglomerating, a stable suspension will be formed."

Mr. Geary said: "The void volume of any powder is the difference between the total volume at atmospheric pressure and the solid volume (the smallest volume which can be obtained under compression without deforming the particles). These values are readily calculated from the bulk density and the absolute density, which are available from powder manufacturers. Two classes of materials that can be used to fill the void are (1) bulking agents, which are themselves very finely divided powders, and (2) liquids, including propellants. The use of bulking agents to impart flow characteristics to powders is well known. One of the problems is to determine the amount required to stabilize the suspension of powder.

"To determine the minimum requirements of bulking agent, use was

(*Continued on Page* 83)

Corrosion, Cost, and Performance of Three Propellants is Reported

Bower Discusses New Corrosion Inhibitor

AFTER testing approximately 300 potential inhibitors to inhibit the reaction of propellant 11 with ethanol, and to suppress the secondary reactions of acetaldehyde and hydrogen chloride, nitromethane has been selected as the material best suited, F. A. Bower and L. J. Long declared in a joint paper given before the 47th midyear meeting of the Chemical Specialties Manufacturers Association on May 17. The authors pointed out that nitromethane also meets the requirements for an aerosol stabilizer, in that it be colorless, odorless, volatile and nontoxic so as to have no deleterious effects on the product.

Although the DuPont work was based on eight months' storage, Mr. Bower, who delivered the paper, reported that nitromethane, added as a 0.3% solution in propellant 11, can minimize the possibility of corrosion after a "moderately long storage period." He suggested that further data, not yet available, will permit a more accurate estimate of the improvement in shelf-life possible with a nitromethane-stabilized formulation.

He reported that a study of the possible side effects of the stabilizer revealed the following:

1. In no cases could changes be detected in the effectiveness of hair

(*Continued on Page* 80)

Peterson Tells of Cost Reductions

REPLACEMENT of conventional propellant mixtures by mixtures made up largely of methylene chloride, propellant 11, and propane can produce savings in space spray formulations of more than six cents per unit, Robert J. Peterson, Peterson Filling & Packaging Co., Danville, Ill., said in a paper titled "Propellants Up to Date," given before a joint session of the Aerosol and Insecticide Division. He further pointed out that similar propellant substitution, using carbon dioxide and petroleum distillate in place of conventional flourinated propellants, can save more than five cents per can for residual insecticide.

Mr. Peterson took into account possible questions about the flammability of hydrocarbon propellants, with this statement: "We believe that the admirable safety record (of the industry) should not be put in jeopardy and that the same stringent tests required for fluorocarbon propelled space spray aerosols should be applied to all formulas containing hydrocarbons. On the other hand, we feel that the industry should resist any pressures to originate new tests which would specifically rule out hydrocarbons as a propellant. A considerable amount of work has been accomplished toward the successful combination of certain amounts of hydrocarbons with fluorocarbons. The finished aerosol remains a non-flammable package measured by existing tests."

For his example of cost savings, Mr. Peterson used four different space

(*Continued on Page* 79)

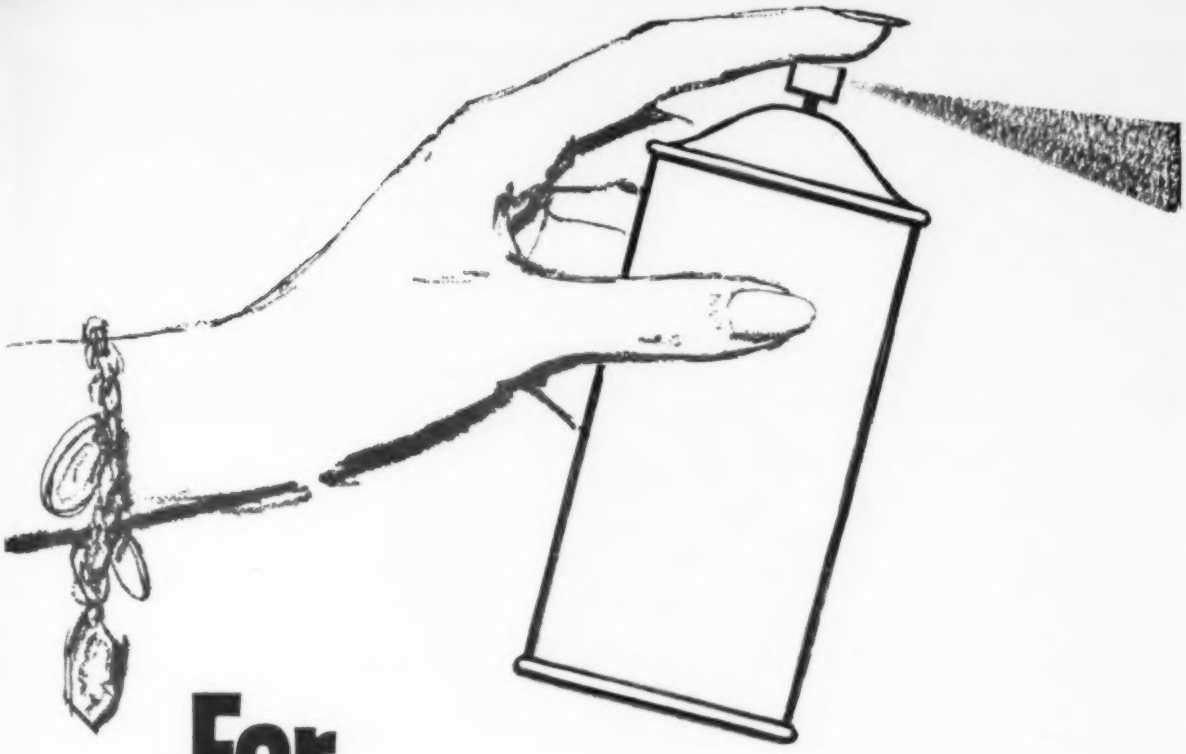
Hinn Reveals New Compressed Gas Uses

COMPRESSED gas propellants for non-food aerosols will, of necessity, be limited to foam, aerated stream, or residual spray products, declared John S. Hinn of Air Reduction Sales Co., Madison, Wis., in a paper titled "Nitrous Oxide As a Propellant in Non-Food Aerosol Products" given before the Aerosol Division of the CSMA. Pointing out that there is little gas expansion effect at the actuator (as is the case with the fluorinated hydrocarbons), Mr. Hinn said a mechanical break-up actuator is required to produce a residual spray pattern of the proper character.

"At the same time," he continued, "since the propellant is a dissolved gas, at aerosol pressures, rather than a miscible liquid, relatively small amounts of nitrous oxide propellant are used. In such a product as glass cleaner, for example, a six-ounce aerosol package would contain perhaps 2.2 grams of nitrous oxide. With a four fluid ounce fill, this propellant component would produce a beginning equilibrium pressure of 85-90 psi and a residual pressure, after normal use, of 42 psi."

Mr. Hinn somewhat discounted the effect of accidental loss of headspace gas from aerosols powered by nitrous oxide. By use of a series of

(*Continued on Page* 80)



For Top Quality

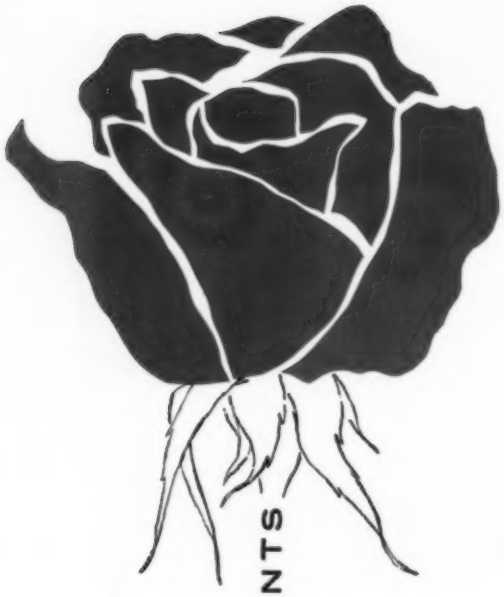
...use Phillips Hydrocarbon Propellants

Make more profit . . . use Phillips Hydrocarbon propellants. Exceptional quality! Excellent stability! High uniformity! A wide range of consistent pressures!

Phillips Aerosol Hydrocarbons (Propane, Isobutane, Normal Butane) cost much less than other types of propellants . . . and can be blended to pressures of your choice. Write or phone today for full details.

PHILLIPS 66

PHILLIPS PETROLEUM COMPANY
Special Products Division
Bartlesville, Oklahoma • FEderal 6-6600



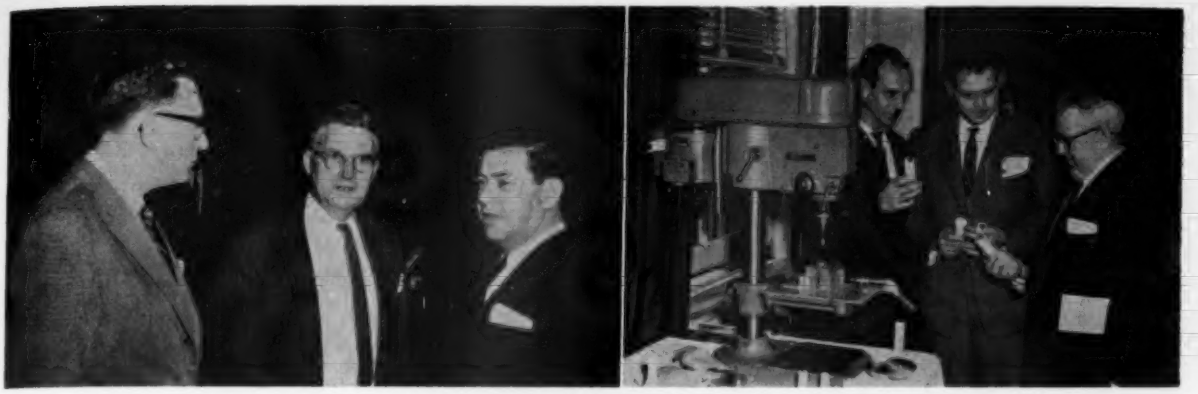
NORDA MAKES GOOD SCENTS

Norda

Exclusive Basic Materials for: Perfumes, Cosmetics, Colognes, Soaps

Write on your letterhead for free samples:

NORDA, 601 W. 26 St., New York 1, N.Y. • Chicago • Los Angeles • San Francisco • Toronto • Montreal • Havana • London • Paris • Grasse • Mexico City



From left: B. A. Rausch (Du Pont), Dan Terry (Boyle-Midway) and George Barr (G. Barr & Co.). At right, Bill O'Donnell and W. Wingard (VCA) show device for spin-welding plastic containers to R. A. Fulton (USDA).

CSMA Meeting Report

Aerosol Insecticide Formulations Subject of Joint-Division Meeting

Space Sprays

BECAUSE of difficulties confronting the introduction of new toxicants able to meet Federal and state regulations, manufacturers of aerosol products cannot expect too many startling developments or formulation changes based on improved or newly introduced insecticides, John Odeneal of the Fairfield Chemicals Division of Food Machinery & Chemical Corp. told a joint meeting of the CSMA's Aerosol and Insecticide Divisions in Chicago on May 16. Mr. Odeneal, who was one of five speakers making up a "Symposium on Aerosol Insecticides," suggested that the "next major step in pressurized and aerosol insecticides will undoubtedly center about the development of new propellant systems, inexpensive solvents, improved valving systems, and the introduction of such gases as isobutane, butane, carbon dioxide, and nitrogen, for these formulations."

Mr. Odeneal differentiated between the two types of flying insect control products with these definitions:

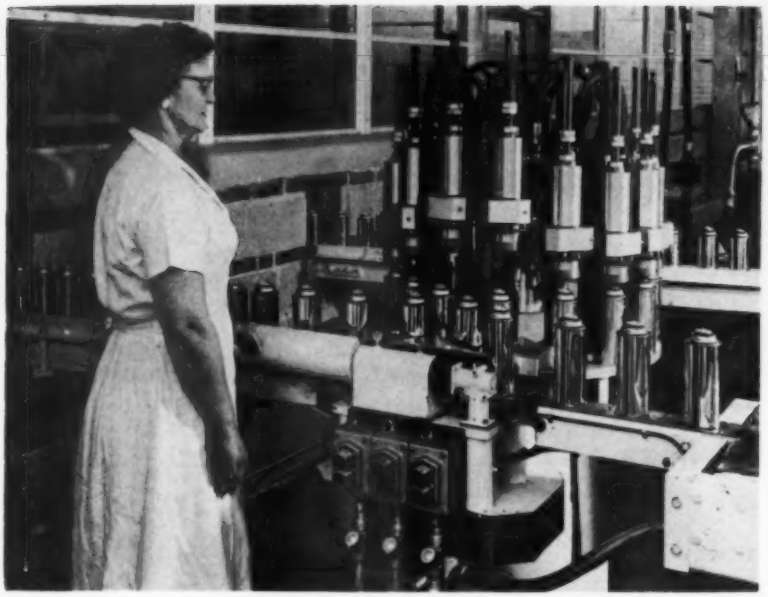
1. "The aerosol space spray, defined as a spray in finely divided form, 80% or more of whose individual particles have a mean diameter of 30 microns or less. No particle in such a spray has a diameter of more than 50 microns.
2. "The pressurized space spray, which delivers a mist intermediate to the aerosol type or a residual insecticide deposit. Particles of a pressurized space spray are generally above 50 microns and have a mass mean diameter of 25 microns."

Mr. Odeneal explained that during the first few years of the industry, the aerosol type was used exclusively. "But with the development of superior valves and formulating systems, the pressurized type of spray has received increasing attention. In recognition of this, during the past two or three years the CSMA has developed a revised CSMA Aerosol and Pressurized Space Spray Insecticide Test Method for Flying Insects. . . . Patterning itself after the O.T.I., it establishes a grading system for aerosol and pressurized products. This grade may be indicated on the container label to indicate to consumers the performance characteristics of the product.

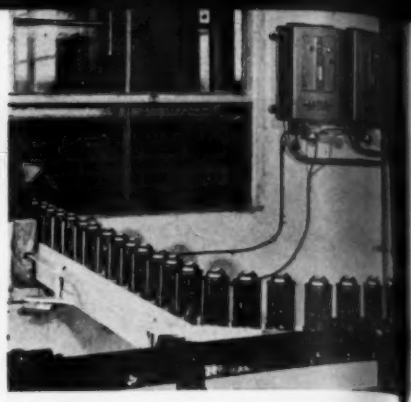
". . . The method describes the means by which both aerosol and pressurized sprays may be evaluated. The descriptive word 'aerosol' may only appear on pressurized containers which emit aerosol-size particles, and whose performance at 3 grams/1,000 cu. feet meets the standards of the method. Pressurized sprays being tested must be no less effective in biological performance (15-minute and 24-hour mortality) than the Official Test Aerosol when tested at no more than twice the O.T.A.-specified dosage. Once a pressurized spray has been tested, its grade may be designated. An aerosol or pressurized spray is Grade A if it equals or exceeds the O.T.A., when compared at 3 grams 0.5 grams/1,000 cu. feet. Grade B is reserved for pressurized sprays equaling the O.T.A. when tested at 6.0 grams 0.5 grams/1,000 cu. ft."

According to Mr. Odeneal, the new test method is particularly important in evaluating pressurized products, since "it can be seen from the definition that twice as much of Grade B is required as for Grade A. Therefore, a Grade B product, in a 12-ounce container for instance, will

(*Continued on Page* 71)

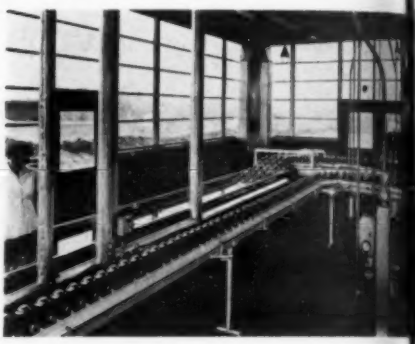


In the hydrocarbon filling room, a Stalfort inspector watches as filled, vacuum-purged, and crimped cans move from main plant to new 15-head hydrocarbon gasser, which is capable of speeds up to 300 per minute.



Two MSA monitoring devices use tubes to probe into filling room and pick up air for analysis. Any trace of gas triggers alarm.

Interior of room, showing containers moving in at far right, gasser, four-lane bath at left, and return conveyor to main plant (in foreground).



Stalfort Begins Operations With New Hydrocarbon Line

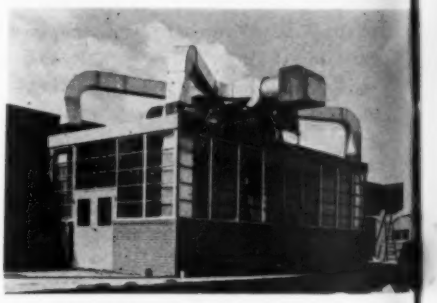
"outdoor" installation uses high-speed rotary units

A NEWLY designed, "outdoor" hydrocarbon gas filling line has just been put in operation at the Pressure-Pak plant of the John C. Stalfort & Sons Co. on the outskirts of Baltimore, Md. In the obvious interests of safety, the line, from filling room, new steam power plant and storage area is completely outside the main plant.

The filling room is 20 by 30 feet, with the latest-design 15-head rotary gasser, capable of speeds of up to 300 units per minute. The room rests on a broad platform outside the main Stalfort structure, in which are operated six fluorocarbon or compressed gas lines, one in a glass-enclosed sanitized room. The only connections between the hydrocarbon room and the main plant are the electrical controls, which are in the main plant and short sections of conveyor lines. The containers are filled in the main plant, vacuum purged and crimped, then moved through apertures in both structures to the gasser, and test bath, then back into the main plant for packaging.

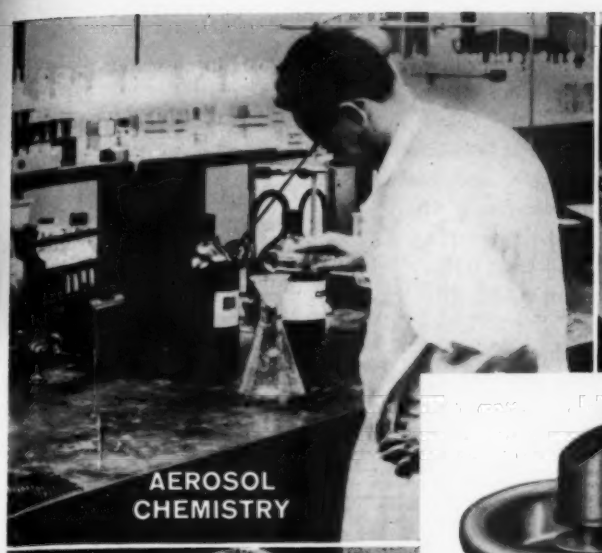
Also in the filling room are facilities for laboratory tests of gas analysis (per cent of impurity), constant weight checks for each head of the gasser, routine pressures, flammability, and spray characteristics. Laboratory personnel also make constant checks on the numerous gas

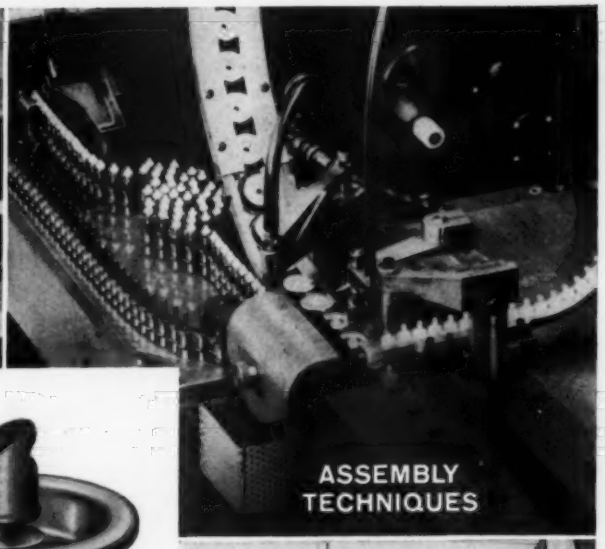
(*Continued on Page* 79)

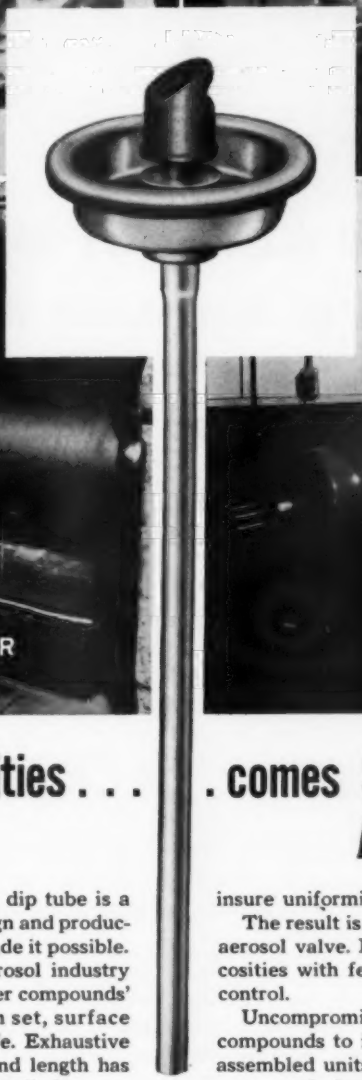


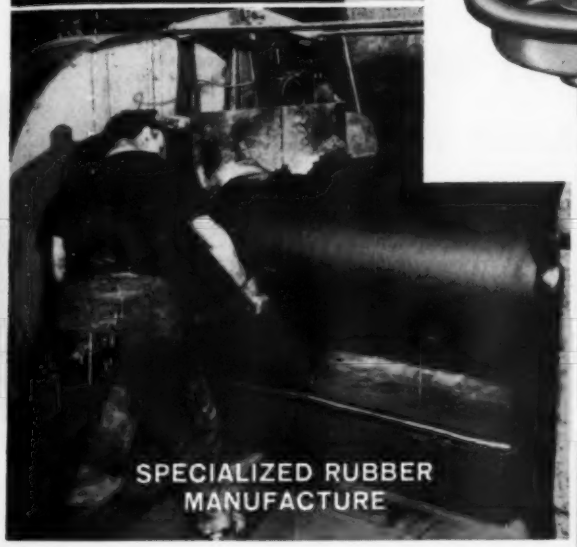
Exterior of hydrocarbon room, showing intricate air-duct system at top. This provides for rapid ventilation of building.

Several hundred yards away from plant is this heavily constructed concrete and wire storage area for hydrocarbon gas.









From Unmatched Facilities . . . . comes Schrader's Superior Aerosol Valve

Every part of this aerosol valve except the dip tube is a Schrader product...and only Schrader's design and production facilities, greatest in the aerosol field, made it possible.

For example: techniques new to the aerosol industry were developed by Schrader to control rubber compounds' hardness, high resistance to compression set, surface smoothness, size uniformity, and service life. Exhaustive research into wire sizes, diameters, pitch and length has provided a superior valve spring with controlled tension. Rigorous new tests and special equipment were devised to control quality of each component. New production methods were used to insure uniformity and precision.

The result is the world's closest approach to a universal aerosol valve. It can handle a wide range of product viscosities with feather-touch actuation and true-aim spray control.

Uncompromising quality, extending from formulation of compounds to inspection and testing of components and assembled units is typical of Schrader. This valve is the culmination of 117 years of experience in meeting and solving pressurized air problems. Discuss your aerosol valve needs with Schrader's Aerosol Engineers.

Aerosol Valves

Schrader®
a division of **SCOVILL**

A. SCHRADER'S SON *Division of Scovill Manufacturing Co., Inc.*
470 Vanderbilt Avenue, Brooklyn 38, N. Y.

Future of Aerosol Discussed at TGA's Annual Meeting

BASED on "three stalwart products of today—hair sprays, shave creams, and perfumes and colognes—pressure packaging of toiletries will have a *substantial* profile in the future," A. H. Lawrence, Jr., manager of the aerosol section of DuPont's "Freon" Products Division, told the annual meeting of the Toilet Goods Association May 8-10 at New York's Waldorf-Astoria Hotel. Speaking as a member of a panel on "Packaging Profiles of the Future," Mr. Lawrence predicted the development of a foam dentrifice and the use of the new piston package for a pressure-propelled dentrifice which would successfully overcome the disadvantages of the present aerosol product.

Mr. Lawrence expressed some concern for the custom filler: "The face of the future *must* reflect compatibility between the aerosol specialist companies and the toiletry specialist companies. The last decade has been exciting for you toiletry people because of aerosols and their industry—that industry which comprises heterogeneous sources of people who are chemists, physiologists, engineers, businessmen, inventors, innovators, making up companies large and small and culminating in the competent aerosol contract filler establishment. These are the people who have made life exciting and contributed handsomely to the profitability of the toiletry markets. They, in turn, have profited from the embracement of the toiletry industry, and are grateful. Let us be sure that profit incentives to the contract filler are not choked off to the point where the toiletry industry loses the service of this friend's mind, his people, and his plant. The profile of the future will be a bolder one if the pressurized packaging people and the toiletry people will work, produce, advertise, and sell together . . ."

Mr. Lawrence emphasized that in the future convenience and utility of the dispensing form are going to become more significant. However, he warned that packaging "gimmicks" are becoming less fashionable: "Gimmick as it applies to getting people to do things they don't want or need, as a word and as a way, will be *less* patiently accepted by tomorrow's pressure-package consumers. There will be a fair and clear climate, however, created by a decade of satisfied users of pressurized packages—a climate where 20-20 vision will easily spot the sensible from the senseless."

Mr. Lawrence predicted that cans, valves, propellants, labels, caps and cartons will be continually improved to "become less of an increment of package cost." Among the specific improvements of the package he predicted these:

1. Soft non-billowy sprays having drier properties and smaller particle size than those now packaged under mechanical break-up valves—to produce products which can be applied to broad areas of the body without cooling or over-spray.

2. Development of ways to pinpoint a relatively dry spray—a dry spray which may be right for certain facial makeup but which now is available only in sprays of too large spray pattern.

"WOMEN generally love aerosols, but complain about that package—the valve that gives up, the difficulty of guessing how much is left; they complain about the odors in hair sprays and about conflicting odors in the cosmetics they use; and they'd like smaller sizes to 'try out,'" declared Charlotte Montgomery, of *Good Housekeeping Magazine*, another speaker in the panel. She advised that marketers of toilet goods should make their labels and advertising *more* helpful "in the woman's own terms—give them at least a glimmering to go on."

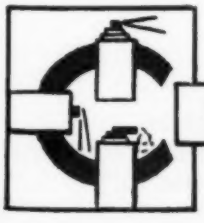
She pointed out that women are "charming optimists," but along with the glamor of a package there ought to be "a spicing of common sense and some information about how she's to achieve those dreams she dreams." She said that women today are quite "savvy," too much so in fact to fall for phony commercials. Turning to aerosol commercials she posed this question: "Must you promise that one swoosh of a spray will keep her hair in place for *five days*, while she rides a gale? . . . The problem of hair in the wrong places is a huge one—and one that apparently needs a great deal more basic research than has been given to it.

(*Continued on Page* 70)

WHAT IS THE DIFFERENCE IN PRESSURE PACKAGING?

CONTINENTAL FILLING CORPORATION

Cosmetic packaging . . . Industrial packaging . . . Is there really a difference??? The end result has to satisfy the requirements of the merchandiser and the consumer. We have the facilities to fulfill all of those requirements at CONTINENTAL FILLING CORPORATION.



CONTINENTAL FILLING CORPORATION

MAIN OFFICE: 123 NORTH HAZEL ST. DANVILLE, ILL.-Hickory 6-7640
PLANTS IN: DANVILLE, ILL. HOBART, IND.

The contract packager had the answer... *another success story from the ISOTRON file.*

He sees through complex aerosol problems

When "unsolvable" aerosol problems come along, Sprapak Chemicals Inc., of Brooklyn, is apt to solve them. This research-minded firm utilizes an analytical and creative approach to aerosol formulation and packaging that has paid off in a number of innovations.

Sprapak has packaged fifty-two different aerosols, including paints and a wide variety of other industrial and household products. They employ an experienced staff whose years in aerosols represent an impressive total. Sprapak has the personnel and facilities to meet your most exacting quality standards—and welcomes your most challenging aerosol problems.

Contract packagers like Sprapak need little more than your "idea" to help put you in the profitable aerosol business. The packager can help reformulate your product to keep all the essential characteristics; can recommend the valve, container and propellent that are best suited to your product. More than likely, he'll specify ISOTRON®—the name that means performance and specialized service.

ISOTRON—*The Key to Modern Living*

Pennsalt® Chemicals
ESTABLISHED 1850

Isotron Department
PENNSALT CHEMICALS CORPORATION
Three Penn Center
Philadelphia 2, Pa.

Food Technologists Hear Symposium of Four Aerosol Technical Papers

THE APPLICATION of the piston container to the food field, another paper discussing N_2O-"Freon C318" mixtures, self-agitating food products, and a general discussion on aerosol valves were the four papers making up a special Symposium on Pressurized Food Products given at the 21st annual meeting of the Institute of Food Technologists held May 7-11 in New York's Hotel Statler Hilton.

Many of the limitations of the common pressurized container for the food field are overcome by use of the "free-piston" container, suggested Paul W. Hardy, of American Can Co., in a paper titled "Aerosol Food Products in the Free-Piston Container. The paper was a joint effort by Mr. Hardy, H. T. Hoffman, Jr., and E. Wheaton, all of American Can's Technical Service Laboratory in Barrington, Ill.

For the dip-tube valve container with compressed gas propellants, Mr. Hardy declared, the package may be operated successfully only in the upright position. If it is held horizontally or upside down it will cause propellant loss and eventual inactivation of the unemptied can. A similar problem, he said, results if the foam-type container is actuated in the upright position. Also, with both these containers there is the risk of product cavitation.

The free-piston container, Mr. Hardy pointed out, can be operated in *any* position with no loss of propellant. "Upwards of 95% of the product will be evacuated in a solid stream." He emphasized the need for a rheological study of the product to be packaged, since those not viscous enough may "run back" around the piston into the propellant phase. He said that the piston container does present some new problems, notably in the area of heat transfer.

Next Mr. Hardy turned to the problem of specifically how to package foods in the new container. A 45-second pre-sterilization of the container to 200°F. is not sufficient to restrict bacterial growth in the product, he reported, though a two-minute pre-sterilization, coupled with a two-minute post packaging sterilization of the filled container did produce promising results. Mr. Hardy declared that the container's plastic piston prohibited its use in packaging of extreme or normal hot fill in products whose temperatures go up to the boiling range. As suggestions for promising product types, he mentioned decorative cake icings, hors d'oeuvres and canape spreads, and similar viscous products in which convenience of the aerosol package might be a prime selling factor.

CORRELATION of three variables—viscosity of the product concentrate, pressure in the container, and size of the discharge orifice—can produce a satisfactory product which would be dispensed as an aerated stream, Dr. John J. Sciarra, of the College of Pharmacy, St. John's University, Jamaica, N. Y., declared. This aerated stream is instantly dispersed throughout the liquid when directed into water, milk or other liquid, he reported, and offers many advantages over the conventional aerosol food package.

Dr. Sciarra suggested that the chief areas of promise for the package are in syrups (chocolate, pure juice, and flavored), milk concentrate, and special dietary foods which must be mixed with liquids. One of the main factors in the failure of nitrogen-propelled chocolate syrups, he said, is that they merely sink to the bottom of the glass and must then be mechanically agitated. This, he said, takes away a major part of the convenience factor so vital to the aerosol package. On the other hand the self-agitating package recently patented by Continental Enterprises, Inc., Brooklyn, N. Y., offers a degree of mixing "greater than that mixed with a spoon."

He reported that the most successful mixture of propellants for this type of container appeared to be a nitrous oxide-carbon dioxide mixture, with most products pressurized to 90-100 psig. For a number of syrups and milk concentrate, the self-agitating principle seems to improve and enhance the flavor, he suggested, and submitted as evidence test marketing surveys in which 90% of the respondents judged self-agitating to be superior to other means of dispensing the products.

MIXTURES of nitrous oxide-and "Freon C-318," appear to yield a whipped topping of higher quality, better consistency, better foam stability, better retention of color, and less weeping or drainage, Patricia A. Lychalk of Air Reduction Co., said in a paper prepared with Frank W. Bower, of DuPont. Miss Lychalk reported that "Freon C-318" or mixtures of "Freon C-318" and nitrous oxide can be used in other oil-based toppings, such as aerosol salad dressings or canape spreads, to achieve all the characteristics desired of good whipped toppings.

She reported development of a satisfactory method of charging of "Freon C-318" and nitrous oxide

from a premixed cylinder. She said the propellants are withdrawn from a heated cylinder, through a heater, heat exchange coil, and a reducer, to the filling line.

The success of the aerosol industry, both in foods and non-foods is based in a large part on standardization of the one-inch valve opening, declared W. Earl Graham, of Clayton Corp. He said this important development has permitted the prospective aerosol packager wide latitude in selecting package components. By varying orifices for different products, Mr. Graham said, product improvement can be made at very little strain on packager or supplier.

Turning to food specifics, Mr. Graham suggested that the valve should be considered closely (for the food package) in relation to the following specifics:

1. Corrosion—this, he said, can best be determined by careful study of test packages stored over long periods of time.
2. Positioning of valve orifices—this can have an effect on clogging possibilities, crystallization of sugar in product, etc.
3. Ease of actuation.
4. Microbiological considerations. ★

SCC Meets in New York

THE ORGANIC chemist, the chemical engineer, the instrument scientist, and the pharmaceutical chemist all can offer definite contributions to the cosmetic industry, the semi-annual scientific meeting of the Society of Cosmetic Chemists was told on May 12 at the Biltmore Hotel in New York. Four separate speakers showed exactly how each one of these "specialists" can contribute to the efficiency and progress of the cosmetic manufacturers.

Dr. Jack Goodman, of the Toni Co., Chicago, reported that the functions of the organic chemist in such areas as synthesis, evaluation and product development can be of extreme value in solving a complexity of organic problems associated with cosmetics. Theodore Swenson, of Helene Curtis Industries, Inc., also Chicago, defined a series of problems solved by the chemical engineer, emphasizing that the main areas of usage of such engineers is in process development and project engineering. He cited the selection of simple ball valves used in cosmetic mixture as one good example of a considerable cost savings effected by the chemical engineer.

The contribution of instrumentation in the cosmetic laboratory was the subject of a paper by G. M. Leigh and A. P. Kent, of Colgate-Palmolive Co., Mr. Leigh, who delivered the paper, reported that instrumentation has grown up "about the cosmetic chemist almost *too* rapidly." In a relatively short period of time, he declared, the chromatographic and spectrographic equipment have become "essential tools" in the cosmetic laboratory. For aerosol shave creams, he reported, the gas chromatograph can be a valuable tool in achieving quality control of the menthol and perfumes in the formulation. In the future, he predicted, the cosmetic chemist will most likely encounter *more* and more *complex* instrumentation.

The role of the pharmaceutical

(*Continued on Page* 69)

Among the product exhibit booths at the IFT meeting was this one by nine member companies of the CSMA to encourage aerosols. The booth was sponsored by Clayton, Emson Research, Fluid Chemical, Givaudan-Delawanna, Peerless Tube, Precision Valve, Risdon, John C. Stalfort, and Aerosol Age. Pictured are Sandy Craige (Peerless), Bill Brosie (Stalfort), and Carl Stearns and Sig Was (Emson).

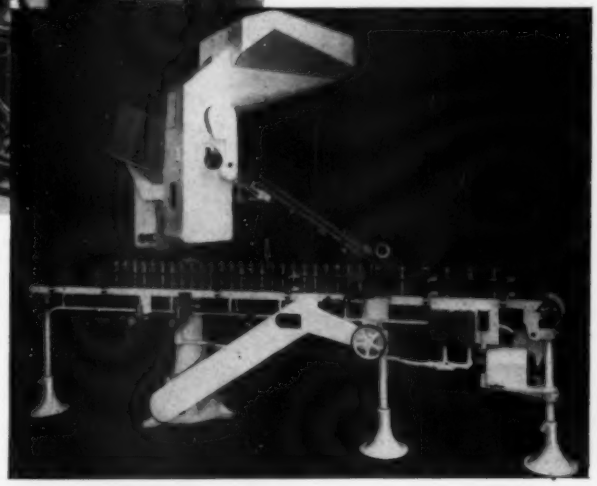
Speakers at the Aerosol Symposium at the IFT included Dr. John Sciarra (St. John's University), Patricia Lychalk (Air Reduction), Earl Graham (Clayton), and P. W. Hardy (American Can).

TOP EFFICIENCY WITH PNEUMATIC'S

OVERCAPPER

HANDLES WIDE RANGE OF CLOSURES, CONTAINERS AND SHAPES, with minimum parts required.

Rounds • Tapers —all sizes



It's fully automatic—no assist needed at all! Conveyor and star wheel are constantly moving, feeding containers without pause through the cap chute release point. Each container "picks off" its own overcap, which is then properly seated by a rubber faced spring-mounted wheel.

Extremely flexible, the OVERCAPPER is designed to apply an extensive range of closure as well as container sizes and shapes, with a minimum need for special parts. A safety device keeps containers in "timed" relationship with spider, whether there is a solid line or single container on the conveyor.

Particularly adapted to aerosol containers, the OVERCAPPER is equally effective for any application where friction closures are used. Speeds from 120 to 200 per minute . . . can be geared lower if desired.

We'll gladly send you more information about this unit as well as details on automatic unscrambling, air cleaning and capping equipment.

PNEUMATIC SCALE CORPORATION, LTD., 67 Newport Avenue, Quincy 71, Mass. Sales Offices: *New York; Chicago; Dallas; Rochester.* Agents: *Fred Todt Company at Los Angeles, San Francisco and Seattle. Rockwell Pneumatic Scale Ltd., Edgware Road, London, N.W. 2, England, O.R.M.A., Paris 8, France. Carbert Manufacturing Co., Division, Cambridge, Mass. Delamere & Williams Co., Ltd., Toronto.*

PNEUMATIC *Packaging and Bottling Equipment*

Up to 37 ounces (1100 cu. cm.) in capacity!

Impact extruded! No leakers!

Highest resistance!
300 psi

Lowest weight
12 oz. container 1.41 ozs.
6 oz. container .89 ozs.

Full range of sizes to meet any requirement of the aerosol industry. Wide choice of diameters, heights and shapes.

One-inch opening to fit any standard 1" valve cup.

Perfect decoration: base coating in any color plus lithographic printing in four colors.

All containers may be internally coated with special lacquers if they are to be filled with corrosive products.

Exclusive distributors for the North American Continent:
Impact Container Corporation, 11125 Walden Avenue, ALDEN, New York.

B.P.D.

BOMBRINI PARODI-DELFINO
MECHANICAL DIVISION

VIA LOMBARDIA, 31-ROME - ITALY ☎ 46.80 ✉ BOMPARDE - ROMA

Consultant's Corner

by Robert A. Foresman, Jr.
Aerosol Consultant
Philadelphia, Pa.

Economics in the Aerosol Plant

OUTPUT of product with an adequate profit margin is the cornerstone of free enterprise economics. This statement, of course, encompasses all factors involved in such output including raw materials, transportation, manufacturing process choice, geographical location, cost of utilities, etc. All of these, as well as others, are important, but more or less independent of day-to-day effects on profits. The one factor that can influence profits, and that is under the direct control of all echelons of management, is *production efficiency*. The key to this generally resides in the proper use of manpower.

In the aerosol industry this factor is an especially important one since there are many facets of production where it is simply *not* practical to automate or even mechanize operations. As a corollary to this I might say that in my opinion a fair proportion of aerosol plants in the country are over-mechanized to start with —even for some of the higher production organizations.

I use "production urgency" as the term for the frame of mind necessary for real production efficiency. The urge to get every last possible bit of output from each operation must permeate all personnel if ultimate capacity is to be reached with the available manpower and machines. This urge may derive from a number of sources, but the single most important one is respect for one unit of production. When everyone on the production team comes to see each unit of output as of overriding importance, production urgency will have been achieved. On the other hand, if this fundamental approach is lacking, all sorts of time-loss (and production-loss) practices will creep in. These may range from excess coffee break time to improper lubricating and maintenance practices.

THE IMAGES of "stop watch" work rating, quotas, incentive plans, etc., over the years have come to be associated with improved production efficiency, but these things are in themselves simply symbols and frequently counterfeit ones at that. Occasionally they may provide motivation—if they do, some initiating purpose will be served—but in the long run they must follow, not lead, in the race for higher productivity.

Management must lead. To lead, it must provide the example and the original concept of, and economic need for, the efficient use of time and effort, and must never allow an *image* of a casual or "don't care" attitude to develop. This may appear to mean that management must be cold and hard driving, but that does not follow. It rather means that management must intelligently *demand more of itself than of its subordinates*. A tightly run organization spiced with wholesome and constructive internal competition which rises to all challenges and successfully meets them will, nine times out of ten, develop a soaring morale. To superimpose production urgency on such an organization is not difficult.

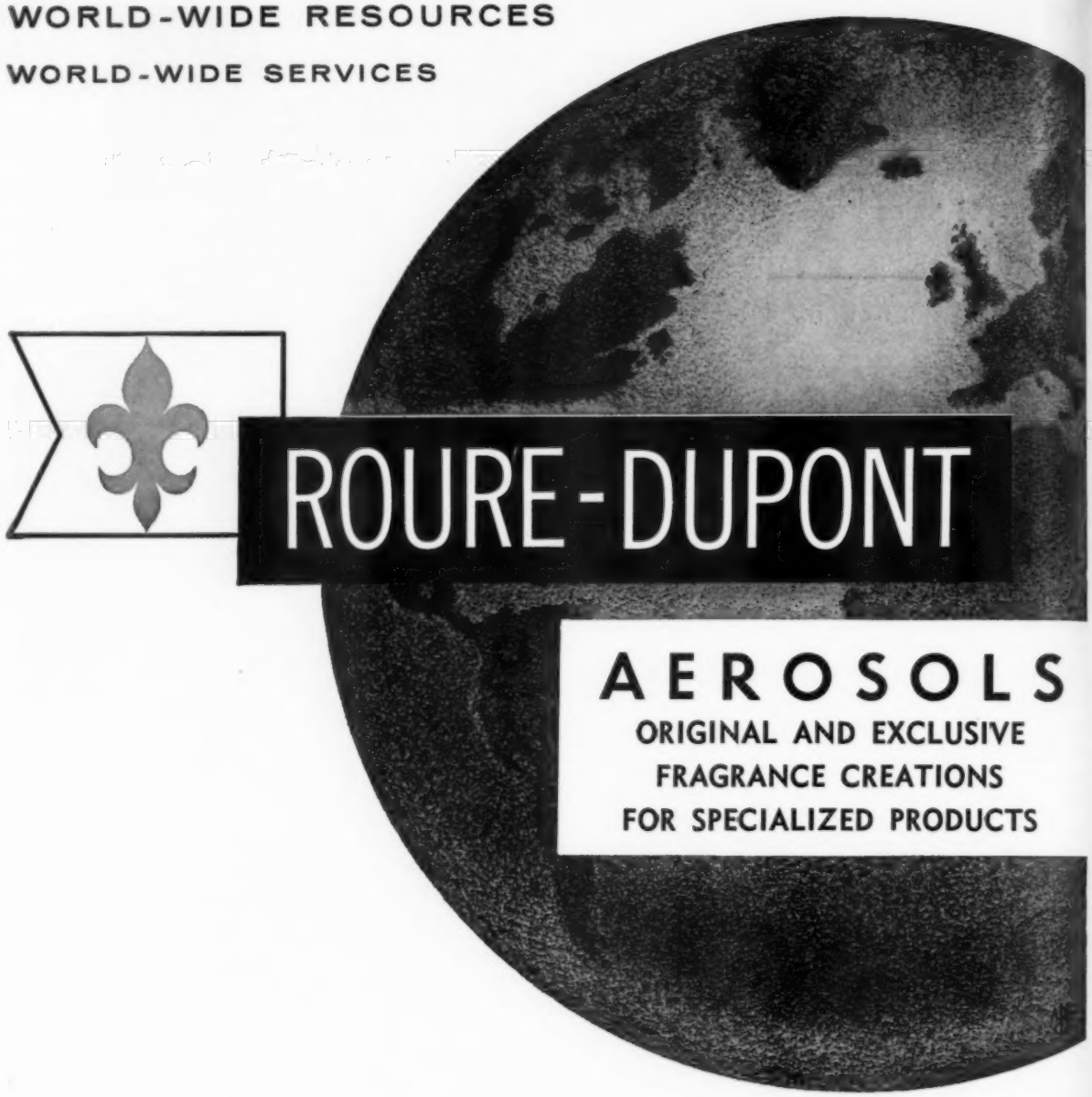
Intelligent production urgency presupposes some knowledge of *how* to achieve increases in production. With untrained personnel this must always come from management, but as time goes on the process will be self-regenerating and will be accelerated as more and more refinements will present themselves to the increasingly skilled eyes of all those involved, management and otherwise. Proper arrangement of work space, convenient delivery of components to operators, discharge of sub-assemblies to the right place, proper hand or finger motions, proper utilization of mechanical cycle time, multiplying time-consuming partial operations at coordinate with a faster operation at a later stage, stocking of partially completed units, consolidation of orders on the basis of common operations or ingredients or components, etc., are obvious first approaches to production increases to which skill can add as time goes on.

Obviously the application of production urgency analysis and possibilities will vary with the function and responsibility of the worker. The greater the responsibility, the greater the opportunity. On the other hand, management leadership will see to it that each one on the work force will be given a chance to voice his thoughts for improvement and that these be considered. This does not mean that there must be a formal arrangement for suggestions — good management can give everyone the feeling that his contribution will be welcome and appreciated any time it is tendered. If this atmosphere is effectively developed, there is practically no limit to how far the process can carry. If a worker on a job feels that it is to his advantage to show how his task can be done better, he is usu-

(*Continued on Page* 85)

WORLD-WIDE RESOURCES

WORLD-WIDE SERVICES



ROURE-DUPONT

AEROSOLS

ORIGINAL AND EXCLUSIVE
FRAGRANCE CREATIONS
FOR SPECIALIZED PRODUCTS

137 YEARS' experience as primary producers of Essential Oils and Aromatic Chemicals gives us unexcelled knowledge of the reactions and vagaries of these products.

We have been leaders in the creation of Internationally renowned original Fragrances and their incorporation in all Cosmetic Products including Aerosols.

An O.K. by our Laboratories here and abroad is assurance that your Aerosol presentation will be professionally tested for consumer acceptance, diffusion qualities, compatibility and all other technical requirements.

ROURE-DUPONT, INC.

Sole Agents for the United States and Canada for
ROURE-BERTRAND FILS et JUSTIN DUPONT, Paris, Grasse

CHICAGO
510 North Dearborn

366 Madison Avenue, New York
• MURRAY HILL 7-5830 •

HOLLYWOOD
5523 Sunset Blvd.

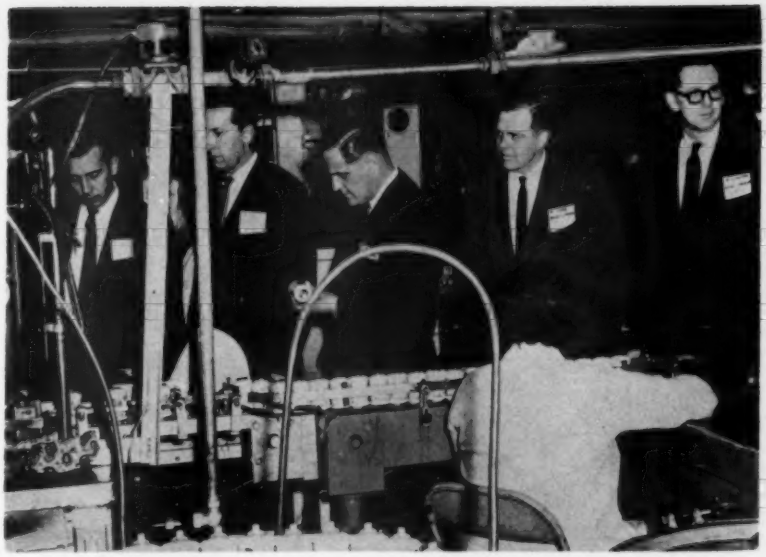
Aerocide Dispensers Marks 15th Year

merger with Struthers announced

CANADA's oldest and largest pressure packaging company, Aerocide Dispensers, Ltd., Toronto, recently welcomed more than 200 Canadian and U.S. guests to its plant in celebration of its 15th anniversary. The celebration, also held to mark a large expansion of the company's plant and laboratory facilities, was highlighted by the announcement that Aerocide has merged with John Struthers & Co., Ltd., Montreal, another major Canadian custom filler.

Struthers will operate as a wholly-owned subsidiary of Aerocide Dispensers, and will continue in operation as "John Struthers & Co.," with Mr. Struthers as president. Carl Durant, Aerocide president, said that "Additional service and savings will result from the combination of facilities of the two companies and expanded laboratory controls."

The anniversary reception featured guided tours of the manufacturing areas, with inspection of the plant's four separate packaging lines. Refreshments were served in the new compounding area, where illustrations of the progress of aerosol filling in Canada were on display. ★

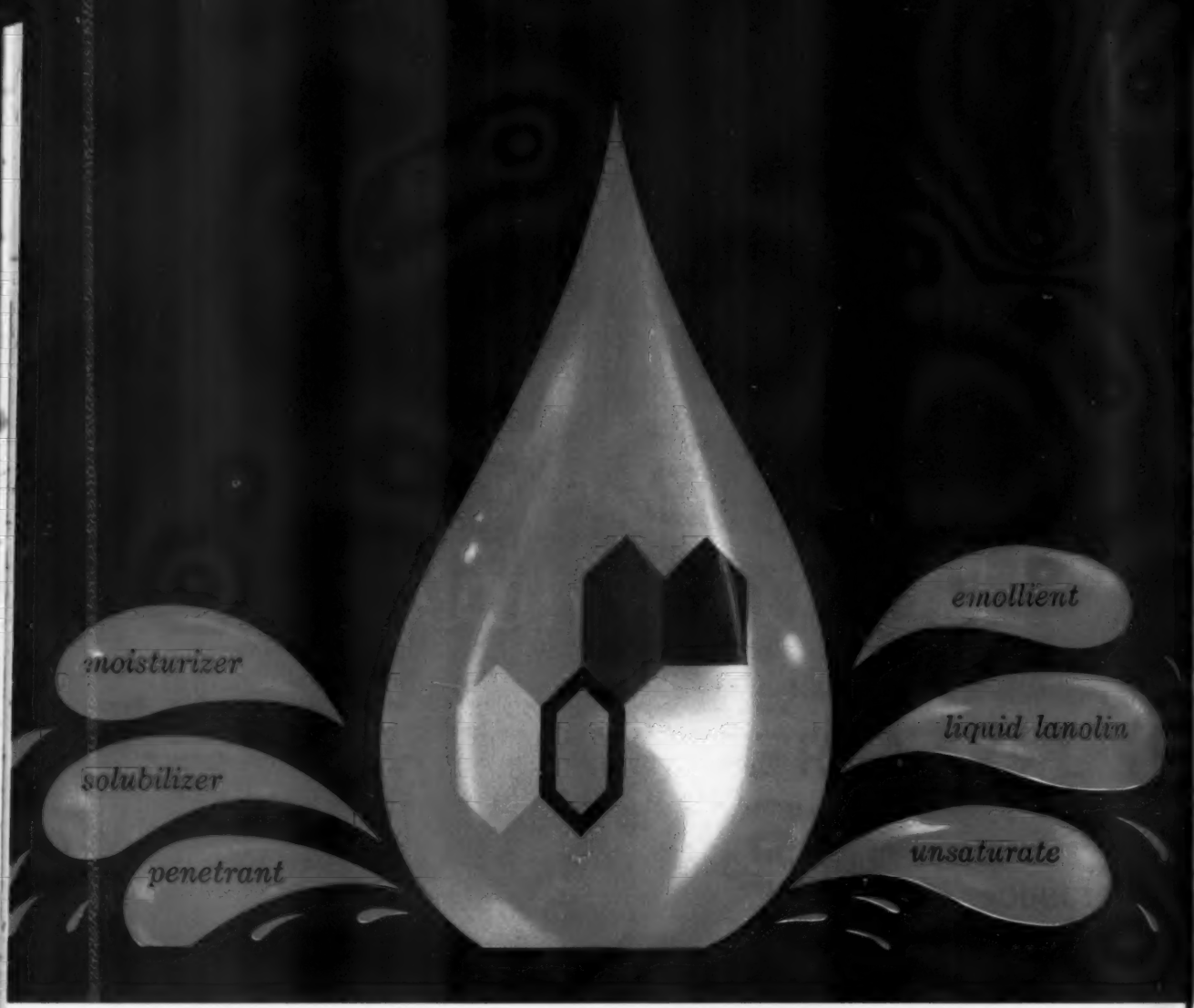


Examining filling line are A. E. Scott (Union Carbide Canada), Pat Mahoney (Commercial Alcohols), Joe McCullough (Consolidated Alcohols), and Press Carr and Trevor Clayton (Allied Chemical).

John Struthers (left) and Carl Durant

Touring laboratory are J. E. Hart (Aerocide Dispensers), Charles Hill (Modern Containers), Ross Surerus (American Can), William Scott (Gairdner & Co.), Bill Collier (American Can), and Jim Campbell (Gairdner & Co.).

Ralph Legate (right) (Aerocide) shows R. Wedgenant and J. Opitz (Norda Ltd.) display of first Canadian filling plant.



AMERCHOL Lanolin Derivatives

add specific new functional properties to lanolin's most active components

AMERCHOL Derivatives and lanolin do have a common denominator, but the similarity ends there. AMERCHOL Derivatives add special properties and specific functional effects to lanolin's most active components. These unusual materials provide the formulating chemist with valuable new tools for producing superior cosmetic and aerosol products.

moisturizer
AMERCHOL L-101®—powerful *free-sterol* depressant of interfacial tension. Excellent auxiliary emulsifier. Adds gloss, soft textures, and superb emollience to formulations and imparts valuable moisturizing effects to the skin.

solubilizer
SOLULAN®—*ethoxylated derivatives.* Water soluble, yet emollient! Solubilizers of great general utility. Impart excellent plasticizing, lubricating, and conditioning qualities at low concentrations.

Complete technical data, samples and suggested formulas are available from our research laboratories.

penetrant
ACETULAN®—*acetylated lanolin alcohols.* Non-oily hydrophobic liquid emollient. Penetrates and lubricates leaving a persistent soft after-feel that is truly remarkable.

emollient
MODULAN®—*acetylated lanolin.* Our own patented product. An unusual hypo-allergenic emollient. Non-tacky, oil soluble, and hydrophobic. Excellent for emulsions, soaps, baby oils, and brilliantines.

liquid lanolin
VISCOLAN®—*dewaxed lanolin.* Supplies all the natural benefits of lanolin in intensified, convenient liquid form. Oil-soluble, low odor and color.

unsaturate
POLYLAN®—*essential polyunsaturate.* Liquid *wax ester.* Combines the natural benefits of linoleic acid with the softening, protective, and conditioning properties of lanolin's most active components.

Amerchol
AMERICAN CHOLESTEROL PRODUCTS, INC.
Amerchol Park • Edison, New Jersey

news of pressurized packaging

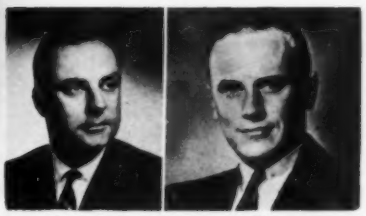
Aero-Chem Fillers Expands

Aero-Chem Fillers, Inc., Bridgeport, Conn. custom filler specializing in glass and metal cosmetic containers, recently completed installation of a new line for filling industrial products. The new line will operate from Aero-Chem's second plant at 185 Massarick Ave., Stratford, Conn. First products to be manufactured on the new line are "Repair 'n Air" and "Redi-Spare", both tire repair aerosols in aluminum containers.

•

Colgate Appoints Two

Colgate-Palmolive Co., New York, has announced the election of Robert W. Young, Jr., as vice-president and general manager of the Household



Grimm Young

Products Division. To fill the position left vacant by the promotion, the company named John E. Grimm, III, as vice president and marketing director of the Household Products Division.

Mr. Young replaces William T. Miller who, in the "near future" will assume the duties of president of Colgate-Palmolive International, Inc., pending which Mr. Miller will provide advice and counsel to the new management team of the Household Products Division.

Mr. Grimm joins the company directly from Sterling Drug, Inc., where he was a vice-president of marketing. Previous to that, he had served as vice-president and director of marketing of the J. B. Williams Co. He is a graduate of Dartmouth College, where he received his A.B. degree in 1944.

Mr. Young joined the Colgate organization in 1959, as vice-president and director of marketing for the Household Products Division, directly from his post as vice president at Kenyon & Eckhardt, Inc. He is a graduate of Harvard College and the Harvard Business School.

•

Action Plastics Consolidates

Action Plastics, Inc., a major producer of dip tubing for aerosol valves; Colorite Plastics of New Jersey, Inc.; and Unichem, a group of plastics extrusion companies in Paterson, N. J., have been consolidated under the name of Colorite Plastics, Inc. Action Plastics will operate as the custom extrusion division of Colorite. Colorite recently sold its stock to the public, and is currently an over-the-counter security.

At the same time as the announcement of the consolidation Colorite concluded an agreement with Wragby Plastics, Wragby, Lincolnshire, England, to allow that company to produce aerosol dip tubing under license to use Action production methods for the West European market. Wragby, which is also currently supplying molded components to aerosol valve manufacturers in Europe, will make its first dip tube shipments in early July. The British company is owned by Harrison Ltd., Birmingham, a major manufacturer of brass hardware.

•

Faberge Elects Philip Brass

Faberge, Inc., New York, has appointed Philip Brass to the new post of executive vice-president. With the company for 21 years, he was last vice-president in charge of plant operations.

Weatherford to Va. Chemicals

J. A. Weatherford had been promoted to the newly created position of director of sales for Virginia Chemicals & Smelting Co., West Norfolk, Va. aerosol marketer. In his new position, he will be responsible for all sales of the company including industrial chemicals, refrigeration and air conditioning products, aerosols and products sold overseas.

Mr. Weatherford has a B. S. degree in chemistry from Kent State University and received an M. S. degree in chemistry from Ohio State University. He is an associate member of the American Chemical Society and the Technical Association of the Pulp and Paper Industry. Prior to joining the Virginia Chemicals staff in 1954 as manager of its Chemical Sales Department, Mr. Weatherford was with the Chemical Division of Goodyear Tire and Rubber Co. and the Semet-Solvay Division of Allied Chemicals Corp.

•

Aerocos Appoints Cook

Louis Cook, who has been associated with the packaging industry for 25 years, has been named industrial sales manager for Aerosol Corp. of the South, Arlington, Tenn., aerosol custom filler.

Mr. Cook's appointment was announced by Donald L. Cottam, president of AEROCOS, who noted that Aerocos is expanding in the industrial and institutional field and now offers a complete line of aerosol-packed sanitary and maintenance chemicals, a line which includes: room deodorizers, insecticides, window cleaners, chalkboard cleaners, upholstery cleaners, disinfectants, fire extinguishers and other products.

•

Amer. Teleseptic Changes Name

American Teleseptic Co., New York, marketer of antiseptic telephone sprays and other aerosol products, has changed its name to Hygienic Aerosol Co., Inc.

College Class Tours Fluid Aerosol Plant

The special aerosol course at St. John's University, Jamaica, L. I., (*Aerosol Age*, May, p. 75) last month visited the plant of Fluid Chemical Co., Newark custom filler, to examine commercial production techniques and equipment. Anthony Iannacone (left), Fluid research director, conducted the tour.

Peerless President Honored

Frederic Remington, president of Peerless Tube Co., Bloomfield, N. J., has been tendered a special testimonial dinner by the Collapsible Metal Tube Council on his retirement as president of the industry association. He had founded and become first president of CTMC in 1935.

At the dinner, held May 17 at the Seaview Country Club, Absecon, N. J., executives of each of the 13 companies producing metal tubes in the U.S., gathered to honor Mr. Remington, who has been a pioneer in a number of technical improvements of the collapsible tube. Among his inventions is a high-speed internal waxing machine for metal tubes, an extension tip for mastitis and other pharmaceutical applications, and considerable early development work in the use of polyethylene closures.

•

White's Teter Is Dead

C. A. "Jack" Teter, sales manager of S. S. White's Gas Division, died suddenly on April 16. He was a member of the sales force of The Ohio Chemical and Manufacturing Co. before joining the White organization in 1928. The sales responsibilities of the Mouth Specialties Division were added to his department in 1957 upon the retirement of Charles A. Waterbury.

A resident of Narbeth, Pa., he was a member of the Compound Gas Association. He is survived by his wife, Helen, and a son, Robert.

•

Vim Buys 2 Aerosol Firms

Vim Laboratories Co., Adamstown, Md., has announced the consolidation of D'Henri, Inc., Washington, D.C. and Atlantic Aerosol Associates, Inc., Frederick, Md. Both will continue as wholly-owned divisions of Vim. The three companies do custom packaging of aerosols, including a wide range of cosmetic, industrial, and chemical specialty products, and more conventional creams, lotions, etc.

•

Handwerker to NBC Labs

Sy Handwerker, Chicago public relations man, has been named vice-president and director of public relations for the National Bird Control Laboratories, Skokie, Ill. aerosol marketer. He previously has been president of his own public relations firm, and prior to that was assistant director of publicity for Balaban & Katz Corp.

•

Kimball New Snell President

Cyril S. Kimball, executive vice-president since 1953, has been elected president of Foster D. Snell, Inc., New York research company. He succeeds Dr. Foster D. Snell, who had served as president and board chairman since the company's founding in 1930, who will continue as board chairman.

Mr. Kimball started with Foster D. Snell in 1926 as an assistant chemist, and progressed through various positions, including chief chemist, research director, and vice-president. His consulting experience has been chiefly in applied chemistry and product development, including polishes, degreasers, waxes, cleaners, and other specialty products.

He is active in the Chemical Specialties Manufacturers Association (board of governors, Wax and Floor Finishes Division), Society of Chemical Industry, American Chemical Society, American Institute of Chemists, and the American Society for Testing Materials. He was graduated from Rhode Island State College with a bachelor of science in chemistry in 1926, and subsequently took graduate courses at New York University and Columbia University.

Do you have an

AEROSOL PROBLEM?

If so, the D&O Technical Aerosol Service can help you solve it. Whether your product be cosmetic, pharmaceutical or industrial, trained aerosol technicians are ready to assist you with stability and corrosion tests, perfume compatibility, product formulation . . . **consult D&O!**

DODGE & OLCOTT INC.
Manhattan Industrial Center
Seventy-five 9th Avenue
New York 11, New York

SALES OFFICES IN PRINCIPAL CITIES.

D&O ESTABLISHED 1798

PERFUME BASES • FLAVOR BASES • INDUSTRIAL ODORANTS

BUTONATE

LOW *in toxicity*

FATAL TO BUGS

The insecticidal qualities of butonate mean sure death to flies, gnats, mosquitoes, roaches, silverfish.* This unique pesticide, developed by the Wisconsin Alumni Research Foundation, has the power to paralyze the nervous systems of insects by inactivating an essential enzyme. At the same time, it is one of the safest insecticides known so far as human beings and their pets are concerned.

The demand for butonate has brought about savings through mass production, making it economical as well as effective, safe and convenient for consumers. Convenient because it is non-staining, inoffensive in odor, approved for use in aerosol, space and direct sprays.

Butonate is compatible with most nonalkaline insecticides and fungicides. It can be formulated with most of the commonly used organic solvents... as an oil spray, emulsion, wettable powder or dust for household use. Other promising applications are being investigated – including the control of insects affecting livestock.

Formulating and labeling information on butonate and samples are available from Prentiss. To improve *your* insecticides, get in touch today!

**Butonate's manufacture is licensed by the Wisconsin Alumni Research Foundation under U.S. Patent Nos. 2927881, 2911435.*

Prentiss Drug & Chemical Co., Inc.

101 WEST 31st STREET, NEW YORK 1, N. Y. • 9 SOUTH CLINTON STREET, CHICAGO 6, ILL.

Atlanta • Detroit • San Francisco • Los Angeles • Toronto • Montreal • Fort Worth • Pittsburgh • Philadelphia

General Chemical Uses 4-Truck Fleet for East

This fleet of four 15-ton tank trucks is part of a new company-owned fleet servicing the East Coast aerosol industry from bulk storage facilities of General Chemical Division, Allied Chemical Corp., at Elizabeth, N. J. In the background may be seen some of the construction on the company's third "Genetron" plant at Elizabeth, now nearing completion. The division's other "Genetron" plants are in Baton Rouge, La., and Danville, Ill.

Blackman Heads Cosmetics Co.

Paul D. Blackman has been appointed president of the newly-formed House of Fragrance, Inc., New York, a subsidiary of Genesco, Inc. The House of Fragrance incorporates Parfums Givenchy, Parfums Millot, Paul D. Blackman Corp., and the Wholesale Cosmetics Division of Henri Bendel. Mr. Blackman had been president of the first three of these firms.

At the same time the House of Fragrance announced the appointment of James S. Potter Jr. to the post of vice-president and director of sales. Previously he was general sales manager at Scandia, Tuvache, and French Atomizer Corp., and after that was sales manager of Parfums Millot.

•

New England SCC Meets

The New England Chapter of the Society of Cosmetic Chemists held its regular meeting at Armand's Beacon Terrace, Framingham, Mass., on April 27. Program for the meeting consisted of a regular business meeting and a movie, called "Perfume Production in France," provided by the French Government, through the facilities of the French Consulate, New York. The April meeting marked the first appearance of the New England Chapter's Newsletter, edited by Dr. Richard E. Faust.

D&O Adds to Sales Staff

Dodge & Olcott, Inc., New York, has announced two additions to its national sales force: One of the representatives, T. Fred Baker, will operate from the D&O St. Louis branch. Formerly from Massachusetts, the former president of the Boston Drug & Chemical Club, he received his bachelor of science degree from Michigan State University and has 15 years experience in the industry.

Baker Bjorn

Robert Bjorn has joined the Chicago branch and will work in the Illinois, Indiana, and Michigan territory. He previously was a staff engineer with a management consultant firm in Chicago.

BUILDERS BP PRODUCTS
manufacturer of
AEROSOL LABORATORY and PRODUCTION EQUIPMENT
• Complete Aerosol Laboratory
• Hand Operated Can Crimper
• Alpha Air Crimper
• Combination Can & Bottle Capper
• Small Production Cold Filler
• Pressure Filler
• Nitrogen Filler
• Dry Ice Cooler
• Can Piercing Pressure Determination Apparatus
• Screw on Tops
• Gauge Attachments
• Can Piercers
• Hand Pressure Testers
• Oven for Shelf Life Tests
• Hot Water Bath
• Laboratory Cold Filler & Deep Freeze
• Sampling Cylinder for Compressed Liquids
• Snow Man Dry Ice Maker
• Tank Racks
• Cabinets
• Storage Cabinets
• Stainless Sinks, Tanks, Pails, Funnels and other stainless items
BUILDERS PRODUCTS
Division of BUILDERS SHEET METAL WORKS, Inc.
108-110 WOOSTER ST., NEW YORK 12, N. Y. • CAnal 6-5390

schimmel

for perfume compounds for aerosols

Bouquet for Aerosol
S 7735–$5.50 lb.

Interesting modern blend, soft but with fresh top notes. Very versatile.

Suitable in perfume, toilet water, hair spray, antiperspirant, among others.

Write us on your firm's letterhead for a sample.

schimmel
& co., inc.
newburgh, new york

Mennen Stops TV Ad

The Mennen Co., Morristown, N. J., has consented to an order forbidding it to use deceptive pictorial presentations to sell its "Mennen Sof' Stroke" aerosol shaving cream, the Federal Trade Commission announced May 18. Both Mennen and the Commission's Bureau of Litigation agreed to the order. It was accepted in an initial decision by Hearing Examiner Harry R. Hinkes, which the Commission adopted. The company was charged in the FTC's complaint of last October 17 with employing false and misleading artifices in television advertising supposedly showing the product's superiority over competing brands of aerosol shaving cream.

This typical TV commercial was challenged: A skin diver with a heavy growth of beard is shown jumping into water about 6 to 8 feet deep. He first shows how competing brands will rapidly dissipate in the hand before being applied to the beard. He then discharges Mennen Sof' Stroke into his cupped hand, applies it to his face and starts to shave.

"Mister," the announcer asks, "do you wet your face before shaving? Then keep it wet . . . really wet . . . and skin divers at Florida's Silver Springs know how . . . they use . . . New 'Mennen Sof' Stroke,' World's richest instant shave cream. It drowns your beard all through the shave. Under water, let's make the cream richness test! First, this leading shave cream. Look—that's not cream richness, that's soap suds! But here's new Mennen Sof' Stroke—that's the richness you want! Yes, Sof' Stroke is so rich that it holds up even under water—So rich that it holds the moisture to your face to drown your beard all through the shave! . . ."

The complaint charged that the following deceptive artifices were employed in the commercial: the purported "Mennen Sof' Stroke" applied to the skin diver's face was actually a mixture of toothpaste and shaving cream, and the diver cupped his hand to a lesser degree in discharging the competing brand.

The FTC's order requires Mennen to stop:

1. Using any demonstration purporting to prove that Mennen Sof' Stroke is superior to competing products, when such proof is not actually given;
2. Disparaging competitive products by untruthful statements or misleading or deceptive methods.

The agreement is for settlement purposes only and does not constitute an admission by the company that it has violated the law.

•

British Co. Names Makepeace

Aerosol Packaging Co. Ltd., Bracknell, a leading British custom filler, has appointed T. H. Makepeace to the post of works director.

•

Charlton Named by Shulton

The Fine Chemicals Division of Shulton, Inc., Clifton, N. J., has appointed John R. Charlton manager of commercial development.

Name Renne to Crown Post

Crown Cork & Seal Co., Philadelphia, has appointed Benjamin C. Renne as district manager of Philadelphia.

He joined Crown in 1954 as a sales representative for the Middle Atlantic Region after many years of sales experience in the packaging industry. He will be responsible for the sale of Crown's line of aerosol cans, closures and packaging equipment in Pennsylvania, Southern New Jersey and Northern Delaware. He will headquarter at the company's offices at 9300 Ashton Road, Philadelphia, Pa.

•

VCA Sales Agent Dies

John D. Buckingham died on May 13 at the age of 57. He was associated with Buckingham Associates, manufacturers representatives for VCA, Inc., aerosol valve manufacturer. Mr. Buckingham was former vice-president and treasurer of Lucien Lelong Perfume Corp.

New Zealand Aerosol Executive Visits United States

GEORGE L. HAMLIN, director of Aerosol Products Ltd., Auckland, New Zealand, largest custom filler in that country, last month began a five-week visit to the United States and Canada. He stopped at the Chicago meeting of the Chemical Specialties Manufacturers Association, and from there visited the Northeast, Toronto, Montreal, and the Pacific Coast.

Mr. Hamlin told *Aerosol Age* that the industry in his country has achieved a yearly production of two million units (as against a population of two and a half million) and "is just beginning to move strongly into a number of new product areas." He reported that insecticides, once making up 80% of the New Zealand market, have now slackened off to a considerably smaller percentage in the light of gains by hair lacquers, paints, pharmaceuticals, snows, and other "younger" products.

Part of the difficulty of the New Zealand industry, he suggested, has been the fact that most components and raw materials have to be imported. Cans, now made domestically, have come mostly from Britain, valves from the U.S., propellants from the U.S. and Britain, and pyrethrum (for insecticides) directly from East Africa. Mr. Hamlin's firm, Aerosol Products Ltd., is the licensed sales representative for Newman-Green, Inc.

Queried about the possibilities for shaving creams and other foam products, Mr. Hamlin said that the New Zealander is used to the 28-cent tube of shaving cream and seems unwilling to pay two to three times that for the aerosol convenience. He suggested that the same situation exists there as it does in Europe, but that it may change as the New Zealand economy becomes more industrialized.

Asked for an appraisal of the aerosol industry representatives at the CSMA convention, Mr. Hamlin said: "They're the grandest lot of blokes I've met. They're very free with information and most helpful about any type of advice I asked for."

make things move with aerosols

'Arcton' goes almost everywhere. It's not only Britain's best-selling aerosol propellent, but the choice of aerosol fillers in Continental Europe and as far afield as South America, India, South Africa, Hong Kong, Australia and New Zealand. The reason is simple: for high quality and uniform performance the 'Arcton' range is unbeaten. There's an 'Arcton' chlorofluorohydrocarbon propellent for every need. Literature and further information are available on request.

ICI
GENERAL CHEMICALS DIVISION

Arcton PROPELLENTS

Imperial Chemical Industries Limited
London
England

AR.57a

Contact your nearest agent for further information about 'Arcton' chlorofluorohydrocarbons.

AUSTRALIA
I.C.I. of A. & N. Z. Ltd., P.O. Box 1911, Melbourne, C.2.

BELGIUM
I.C.I. (Belgium) S.A., 32 Rue Edmond Tollenaere, Brussels, 2.

CHILE
Cia Imperial de Industrias Quimicas de Chile S.A. Com. e Ind., Casilla 1357, Santiago.

COLOMBIA
John Simon & Cia. Limitada, Calle 14 No. 12-50, Oficina 815, Bogota.
Rodrigo Agudelo O, Edif. Garces, Avenida Colombia Calle 11, Oficina No. 303, Cali.
Walter Bridge & Co. Ltd., Edificio "Jenaro Gutierrez", Calle Colombia No. 47-28, Medellin.
Tracey & Compania S.A., Carrera 44, No. 36-29, Barranquilla.

GHANA
I.C.I. (Export) Ltd., P.O. Box 104, Tema.

HOLLAND
I.C.I. (Holland) N.V., Postbus 551, Rotterdam.

HONG KONG
I.C.I. (China) Ltd., P.O. Box 107.

INDIA
I.C.I. (India) Private Ltd., P.O. Box 182, Calcutta 1, India.

ITALY
Beghe & Chiapetta, Via Isonzo 25, Milan.

MALAYA
I.C.I. (Malaya) Ltd., P.O. Box 284, Kuala Lumpur.

MEXICO
I.C.I. (Export) Ltd., San Lorenzo 1009, Esq. Av. Universidad, Mexico 12. D.F.

NEW ZEALAND
I.C.I. (N.Z.) Ltd., P.O. Box 1592, Wellington, C.1.

PAKISTAN
I.C.I. (Pakistan) Ltd., P.O. Box 4731, Karachi-2.

PANAMA
Agencias W. H. Doel S.A., Apartado 322, 29-15 Avenida 11.

PERU
Imperial Chemical Industries S.A. Peruana Com. e Ind., Casilla 1688, Lima.

PHILIPPINES
Wise & Co. Inc., P.O. Box 458, Manila.

SOUTH AFRICA
I.C.I. (South Africa) Ltd., P.O. Box 11270, Johannesburg.

SPAIN
Sociedad Anonima Azamon, Apartado 711, Paseo de la Castellana No. 20, Madrid, 1.

SWEDEN
Holger Andreasen, A/B, Storgatan 7, Orebro.

URUGUAY
Industrias Quimicas Uruguayas "Duperial", Avda. General Rondeau 2050, Montevideo.

VENEZUELA
H. Kern & Co., S.A., Apartado 1567, Edificio Kerr, Av. Ppal. Los Cortijos de Lourdes, Caracas.

ICI GENERAL CHEMICALS DIVISION

Revlon Builds in Mexico

Revlon International Corp., New York, recently broke ground for a new cosmetics and toiletries manufacturing plant in Mexico City, it was announced by William D. Heller, executive vice-president and general manager of the Revlon, Inc. subsidiary. The 55,000 square foot facility will manufacture lipsticks, nail enamels, powders, beauty creams, lotions and fragrances. Production is scheduled to start in March, 1962, when operations will be transferred from existing facilities in Mexico City. Revlon started operations in Mexico in 1947.

"We are building this new plant because of the continuing growth of the market for our products in Mexico," Mr. Heller said. "Increasing demand for cosmetics and toiletries in Mexico is part of a world wide trend."

The new Mexican plant will be one of 24 plants operated by Revlon subsidiaries or associated companies abroad. It is being built by The Austin Co., international engineering and construction firm of New York.

•

O-I Elects Five VP's

The election of five Owens-Illinois Glass Co. executives as vice presidents has been announced by the company headquarters in Toledo, O. The new vice presidents are:

Miles G. Beishline, general manufacturing and engineering manager of the Glass Container Division.

Floyd M. Canter, comptroller of the company for the past four years.

Sid F. Davis, general sales manager of the Glass Container Division.

W. Boyd Owen, director of personnel administration.

Elliott R. Owens, director of engineering and development.

William F. Spengler was elected by the company's board of directors to succeed Mr. Canter as comptroller of the company. Mr. Spengler, a 1950 graduate of Ohio State University, joined Owens-Illinois in 1951 and became assistant comptroller in 1960.

Mr. Canter will become vice president-corporate planning for the company, succeeding Alec M. Turner, who will devote his full time to his recently assumed duties as general manager of the O-I Internation Division.

•

Mysie Emmet Joins Perry Bros.

Perry Bros., Inc., Woodside, N. Y., producer of perfume bases and essential oils, has announced the appointment of Mrs.

Mysie Emmet

Mysie Emmet to the company's perfume staff. She is well known in the fragrance field where he many years of experience have brought her to a position of eminence as a perfumer. In 1952, she became the first woman to be admitted to membership in the Society of American Perfumers.

•

Dr. Gebhart Retires

Dr. Arthur I. Gebhart, who helped search out new products for the Colgate-Palmolive Co., has retired from his post as coordinator of scientific liaison in the company's Research and Development Department. For many years he had screened new ideas and new products in the Colgate-Palmolive Research Laboratories in Jersey City. His preliminary studies assisted in determining whether it was desirable for the company to organize full-scale research programs for further investigation.

Dr. Gebbart also headed up the company's scientific contacts with other research groups from 1958 until his retirement. In this capacity he met regularly with the research and development staffs of the major American chemical companies to discuss possible applications of their scientific studies. A graduate of George Washington University, he joined the company's Research Department in 1941, shortly after he received his doctoral degree in organic chemistry from the Polytechnic Institute of Brooklyn. During World War II he developed an improved, continuous process for manufacturing napalm jelly.

YOU put it there, of course. Though the young lady dressing for her big date may not know it, the perfume she's using — like many other cosmetics on her dressing table — very likely contains ethyl alcohol bearing the U.S.I. label.

YOU put it there because your reputation is at stake every time she presses the dispensing button or opens a jar of your product. You know your product is only as good as the raw materials that go into it. So for assured quality in exacting cosmetic and toiletries formulations, you specify alcohol of assured quality — U.S.I. specially denatured or pure ethyl alcohol. It's the brand hospitals have specified and used with complete confidence for over half a century.

YOU put that ethyl alcohol drum there because U.S.I.'s reputation safeguards your own.

Write on your company letterhead for the new catalog describing all U.S.I. ethyl alcohol products.

USI INDUSTRIAL CHEMICALS CO.
Division of National Distillers and Chemical Corp.
99 Park Ave., New York 16, N. Y.
Branches in principal cities

equipment processes bulletins

Fairfield to Sell "Powco" Line

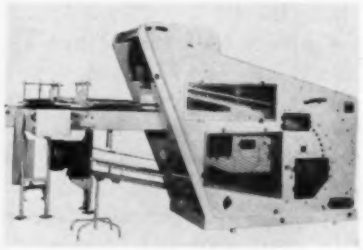
The Fairfield Chemicals Division of Food Machinery & Chemical Corp., New York, has announced that it will make and distribute the new "Powco" brand of specialty base products for non-agricultural use. The recently acquired "Powco" trademark, reactivated and rejuvenated, now covers non-agricultural chemicals, including toxicants for use in household and professional insecticides, pesticides and other specialty items.

Among the items in the line are "Dri-Die," W. R. Grace's trademarked insecticidal silica aerosol, combined with Pyrenone, Fairfield's base insecticide containing pyrethrins and piperonyl butoxide. Technical data and price lists on "Powco" brand dust bases and other products in the line are available from the sales headquarters of Fairfield at 441 Lexington Ave., New York 17, or from Fairfield's regional sales representatives.

•

New High-Speed Uncaser

The Climax "Unimatic" continuous uncaser, a new unit designed to uncase glass and metal containers in a

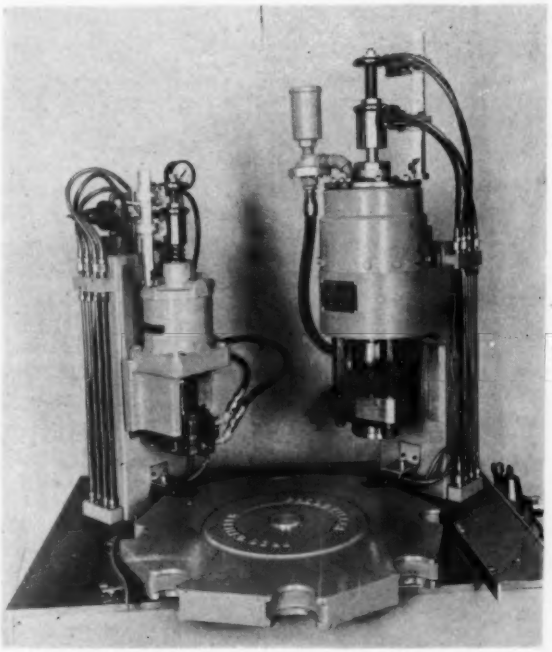


wide range of sizes and shapes, has been introduced by the Climax Products Division of Lodge & Shipley Co., 3055 Colerain Ave., Cincinnati 25, Ohio.

Powered entirely by a ¾ hp. motor, the unit requires no compressed air to uncase up to 50 cases per minute. Flexibility in in-feed and out-feed options make the uncaser adaptable to aerosol and conventional packaging lines. Cartons are carried in a reverse "S" path which allows release of the containers upright on the out-feed conveyor which can be connected to any single filer.

Economic Machine Unveils Filler-Crimper

This is the new "Model OEL" pressure fill and crimper machine now in production at Economic Machinery Co., Worcester, Mass., which is designed to handle all sizes and shapes of drawn, side-seam, and aluminum cans. Economic, said to be the world's largest manufacturer of high speed labeling machinery, recently purchased the aerosol line of OEL, Inc., of Elizabeth, N. Y., and has started production of these machines at its Worcester plant.



New Surfactant Booklet

A 28-page booklet which describes the properties and applications of surfactants used by the cosmetic and pharmaceutical industries has just been published by American Alcolac Corp., Baltimore. Included are data on physical and chemical properties of anionic, nonionic and cationic surfactants as well as formulations for a range of shampoo types, such as liquid clear, lotion, cream, low eye-sting, acid and gel.

The booklet also discusses fatty alcohol sulfates, ethoxylates, and alkyl quaternary ammonium salts and the factors which affect viscosity, stability, compatibility and surface active properties. Several recently developed compounds, a shampoo and bubble bath thickener, emulsifier for creams and lotions, and high purity surfactant for dentrifices and pharmaceuticals are also described.

Copies of the booklet, entitled "Cosmetic and Pharmaceutical Surfactants," are available without charge from the company at 1440 Fairfield Road, Baltimore, Md.

•

Offer Varnish Gloss Controller

A gloss controller for polyurethane varnishes has been developed by LoBo Chemical Products Co., 214 Northfield Road, Bedford, Ohio. Called *ure*-Phlat, it is the result of a unique

Now is the time to order your copy of this technical book entirely devoted to Aerosols:

AEROSOLS:
Science and Technology

Edited by **H. R. Shepherd**

- **562 pages—$22.50**
- **Profusely illustrated**
- **Contains scores of formulations**

* * * * * * *

The publishers, Interscience Publications, Inc., predict that this volume will become "the text-book" of aerosol packaging for many years to come.

* * * * * * *

☐ **Please send me "Aerosols: Science & Technology"** ☐ **Check enclosed**

Name .....

Address .....

City .....

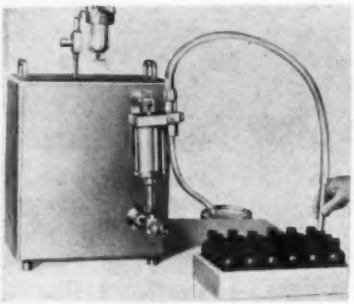
Clip and send this coupon with check or money order to Book Dept., Aerosol Age, P. O. Box 31, Caldwell, N. J.

method of dispersing a finely-divided silica in a polyurethane vehicle. Supplied in bulk form, it is a stable, free-flowing paste, which, when added to clear varnish, reportedly gives a rubbed effect.

LoBo Chemical reports that the material has no effect on the water and mar-resistance qualities inherent in the varnishes, but that it will eliminate settling, seeding, and non-uniformity in satin finish varnish formulation.

•

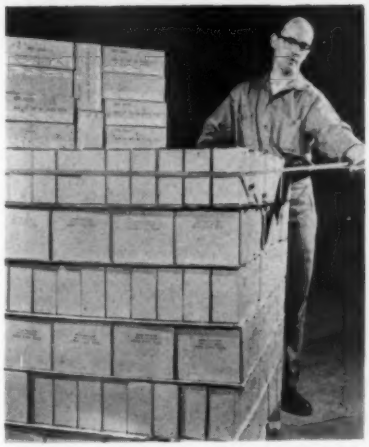
Flammable Liquid Filler



A new, dual-nozzle, air powered "Filamatic" portable liquid filler has been developed by the National Instrument Co., Baltimore, for use with flammable liquids. Trade-named the "Filamatic Model DAA-5", the machine is equipped with dual nozzles and has a volume range from a few drops to eight ounces per stroke per nozzle, or a total of 16-ounces per stroke. Operating speed of the unit can be varied to provide a production rate adjustable from 5 to 40 fills per minute.

The "Filamatic" is powered by a geared head, rotary air motor coupled to two reciprocating piston pumps. The volume dispensed by each pump can be varied by means of a graduated, micrometer mechanism calibrated in measured stages of 0.001." Interchangeable pump units adapt the unit for handling free-flowing, semi-viscous or viscous liquids. All liquid contacting parts are fabricated of stainless steel and Teflon. Interchangeable glass and plastic pump assemblies are available for use with metal sensitive liquids.

Rubber Bands for Cartons



Giant rubber bands that snap around the top layer of cartons stacked on pallets are saving one of the country's leading cosmetic manufacturers at least $1,200 annually in labor, damage and replacement costs, B. F. Goodrich Industrial Products Co. reports. The bands are being used by Helena Rubinstein, Greenvale, L. I. to hold the top layer of stacks of cartons of cosmetics so they won't slide and topple to the floor when the pallets are moved. The unique bands are up to 1½ inches wide and 6 feet long and can be stretched to 18 feet.

William J. Armswood, Jr., Helena Rubinstein purchasing agent, said his company formerly used $800 worth of masking tape each year to hold pallet loads steady. The tape could be used only once, took time to apply and often ripped cartons when it was removed.

"The bands initially cost $544 and are expected to last about three years," Armswood said. "They can be used repeatedly and the ease with which the bands are applied and removed is resulting in an estimated labor savings of $400 a year."

•

Popper Machine Catalog

Popper & Sons, Inc., 300 Fourth Ave., New York 10, N. Y. has announced the availability of its new catalog No. 361F, describing an ex-

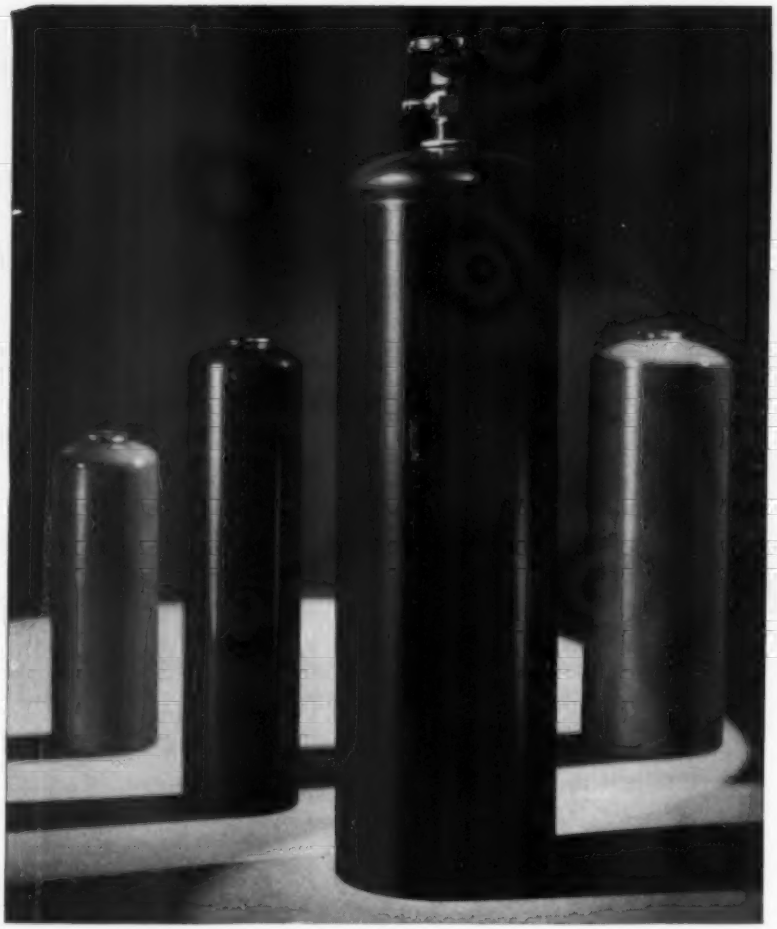
now a plastic starch for the aerosol market!

New from Polyvinyl Chemicals! NeoVac V21P synthetic polymer emulsion opens the growing spray starch market for plastics. This is a breakthrough that offers powerful consumer advantages over ordinary natural starches . . . lasts through 8 washes, is easy to apply, and in the long run costs Mrs. Housewife less. NeoVac V21P is non-yellowing and is stabilized to permit loading in aerosol cans.

Market NeoVac V21P plastic starch under your label! Want samples?

POLYVINYL CHEMICALS, INC.

26-15 Howley Street, Peabodv. Massachusetts



Left to right—TMC 2, 3, 10 and 5 lb. King Size Disposable Aerosol Containers

Don't Overlook This Potent New Sales Approach

● Mr. and Mrs. America are sold on Aerosol Packaging. Industry sales figures prove it.

You can now take advantage of Aerosol Sales Building results in a BIG way. Big King size TMC Aerosol Containers now make it possible to not only increase your dollars per sale, but open up new volume markets.

In addition, they provide the basis for new product design including fire extinguishers, first aid oxygen units, blow torches, camp stoves, lanterns and many other volume sellers.

TMC KING SIZE Disposable Containers

Available in a wide range of sizes including 2, 3, 5 and 10 lb. water capacities for working pressures up to 240 psi — ICC approved.

A letter or phone call, LUdlow 7900, will bring you some potent facts based on successful users.

TUBE MANIFOLD
CORPORATION

panded line of 11 high-speed liquid filling machines. Included are a range of 2, 4 and 8-head automatic, conveyorized, piston-type liquid fillers capable of handling free-flowing, foamy and viscous drug, soap and cosmetic products. Speeds of the machines run as high as 240 containers per minute.

•

Visits Hawaii Perfume Plant

Mrs. Irene Peters, secretary to Raoul Pantaleoni, president of Alpine Aromatics, Inc., was a visitor to the Browny of Honolulu perfume factory on her recent trip to Hawaii. Mr. and Mrs. Peters came to Hawaii on their vacation. She was extremely interested in the fact that all the Browny of Honolulu perfumes and toilet waters contained a real flower in the bottle. She toured the plant and was given samples to study when she returned to the Metuchen (N. J.) office at Alpine Aromatics.

CIBS Award to W-L Chemists

The 1961 CIBS (Cosmetic Industry Buyers' and Suppliers' Association) Award, made annually to the author or authors of the most meritorious paper delivered before the Scientific Section of the TGA during the previous year, was presented last month to Dr. Martin M. Rieger, director of cosmetic development, and Dr. Stanley Brechner, senior chemist, both of Warner-Lambert Pharmaceutical Co. during the May 11 luncheon of the Scientific Section of the Toilet Goods Association. The presentation was made by Robert C. Ring, sales manager, Duveen Soap Corp., president of CIBS.

The subject of the paper was "Studies on the Adsorption of a Simple Dyestuff by Hair" and appeared in Proceedings of the Scientific Section of the TGA #34, Dec., 1960.

British SCC Plans Program

"Packaging in the Cosmetic Industry" will be the theme of the 1961 symposium of the Society of Cosmetic Chemists of Great Britain, scheduled for July 5 at the Old Swan Hotel, Harrogate, Yorks. One of the highlights of the symposium will be a paper on "Current Trends in Cosmetic Pressure Packs", by A. Herzka, of Pressurized Packaging Consultants, Ltd.

Other speakers are:

E. H. Walls, Unilever Ltd.
New Materials in Packaging
C. Tarrant, The Key Glassworks, Ltd.
Production and Properties of Glass Containers
C. E. Morris, Universal Metal Products, Ltd.
Protective Lacquer Systems
F. W. Noble, Robinson Waxed Paper Co., Ltd.
Flexible Packs (Films)

•

Beecham Promotes Two

Beecham Products, Inc., Clifton, N. J., marketer of aerosol "Brylcreem", has appoined Douglas D. Hay, who had been vice-president, sales, to the post of vice-president-administration. New vice-president, sales, is Donald F. Breaugh, who will be responsible for domestic sales of the firm's proprietaries and toiletries.

•

SCC Honors J. T. Davies

Dr. J. T. Davies, director of the Department of Chemical Engineering at England's University of Birmingham, received the Annual Special Award of the Society of Cosmetic Chemists at the Society's Semi-Annual Scientific Meeting on May 12 at the Hotel Biltmore in New York. The award was made in recognition of his work in the field of surface chemistry and was presented by Dr. Sophie L. Plechner, president of the society. In his acceptance speech, Dr. Davies briefly described his work on emulsion stability, interfacial phenomena, the dampening of waves and ripples, and the "stickiness" of cells and dispersed particles and drops.

Dr. J. T. Davies was born in Great Britain and completed his education at the University of Cambridge, where he received the MA (Cantab) degree, and at the University of London, where the Ph.D. and D. Sc. degrees were conferred upon him. He was a member of the teaching staff at the University of Cambridge before joining the University of Birmingham, and has authored some forty-six papers, principally on surface phenomena. He has also written on a new theory of olfaction which predicts numerically olfactory thresholds and has co-authored a book entitled 'Interfacial Phenomena" to be released this year.

SCC Meeting

(*From Page* 48)

chemist was discussed in detail by Richard E. Faust, research director of Cuticura Laboratories, Inc. "The academic training of the pharmacist," he observed, "represents an excellent foundation for developing cosmetic products . . . In no other college training curriculum does the student become familiar with lotions, creams, ointments, and other topical formulation techniques. A recent survey revealed that one-third of all pharmaceutical colleges offer cosmetics courses as part of the regular curriculum."

As evidence of the impact of the pharmaceutical chemist in the cosmetic field, Mr. Faust cited a survey of the 25 leading cosmetic companies in which it was reported that at least half of them employ from one to five pharmacists. He suggested that it is possible to go too far in specialization, and that the pharmacist will offer balance to the cosmetic laboratory.

Joseph B. Jerome, of the American Medical Association's Committee on Cosmetics, suggested that his group and the SCC can cooperate in (a) a review and evaluation of data from studies which have already been made on skin and hair with emphasis on cosmetic applications; (b) the establishment of recognized evaluation procedures which are to be followed in the assessment of different classes of cosmetic materials, and (c) further advances toward the establishment of standard nonproprietary nomenclature for cosmetic ingrediends. He pointed out that increased

productivity throughout the industry is bound to result from enlargement of knowledge.

A discussion on the physical and chemical properties of shellac was the subject of a paper by Herbert Cockeram, of Acme Shellac Products Co. He reported that new wax-free bleached shellacs are proving to have a number of desirable characteristics for hair sprays and other cosmetics. Bleached shellac is a natural plasticizing agent, he said, and offers built-in quick-drying properties, better stability in tinplate containers, and easier removeability than conventionally used hair set resins. ★

TGA Meeting

(*From Page 44*)

Recently products have been promoted with claims that are downright irresponsible!"

Miss Montgomery warned that women are very much concerned about "products that are potentially dangerous." She reported some of her readers express alarm about products which are put on the market and are heavily promoted *before* their danger is discovered.

"You are not doing the job you could and should be doing," she declared. "Instead of taking the young woman by the hand and telling her *what to do*—you give her exotic packages and art, meaningless 'purple prose.' If she buys a product (in spite of this) and takes it home, the instructions are often confusing, full of more claims, and in print so small she can't read it. She is—as you see—bewildered and not happy about her bewilderment."

A THIRD speaker on the panel was Ernst Ehrman, Ehrman and Reiner, Inc., who gave the viewpoint of the package designer. "A good product," he emphasized, "deserves honest packaging—and efficient workable containers that give consumers the home-use convenience they anticipate from the package—will extend its impact. In cases where the very nature of the product *demands* the use of a stock-shaped container, as with the aerosol, for example, a truly creative graphic approach may be all that stands between your choice of one brand and selection of another. Obviously, the experience and unique approach of the professional designer are urgently needed to meet this challenge — and guarantee that every toiletry in your line can stand by itself in a tremendously competitive marketplace."

Mr. Ehrman strongly urged that a professional design firm be consulted at the *inception* of a package idea. "A good designer," he declared, "knows that jumping on the bandwagon of even the most successful recent competitive design can result only in at best short-term gains. More, the approach relegates your brand to a no-man's land of undistinguished—and undistinguishable—allied products. Because professional package

NOW...
SUPERIOR SERVICE
for the
AEROSOL INDUSTRY
FLUTED STACKERS
SEMI-DOMED
PLAIN DOMED
PLAIN STACKERS
We also manufacture tin plate Screw Caps from 18mm to 120mm.
PENN, known for finest service to the bottling industry for over 25 years, is now making tops for aerosol containers.
All of Penn's customers receive superior service and careful attention on every order. You are assured of top quality workmanship, the right price and immediate delivery.
Call or write for information.
Penn CORK & CLOSURES, INC.
1155 MANHATTAN AVE., BROOKLYN 22, N. Y.
EVergreen 9-4416

design is custom design, specially tailored to meet individual needs, the forward-thinking expert recognizes that someone else's successful package can only *indicate* a method of approach—it should never be simply duplicated, or translated by means of color changes. Since it is impossible to interchange any company's personality with that of another, borrowing design results in a blurring of family image that subtracts damagingly from your total advertising and merchandising effort." ★

•

THE FAIR trade situation is "not good at all," reported Jean Despres, of Coty, Inc., president of the Toilet Goods Association, in an address to the annual meeting of the TGA on May 9. Mr. Despres reported that at the moment there are only 26 states where there is an enforceable fair trade law, and 24 more where there is no coverage at all.

"To make matters worse," he continued, "there are two active groups in the country, both with their own ideas—a condition which is likely to spoil the chances of any fair trade legislation this year." In view of this situation, he strongly urged manufacturers and retailers to remember that women buy "toiletries with their hearts and emotions, whereas they buy their groceries with their heads." Toiletries, he pointed out, are seriously damaged by price-cutting and price-wars, and retailers who sell them by these methods are doing lasting damage to the "property of the toilet goods marketer."

On the subject of the Federal Government, Mr. Despres said "possibly this year, but almost *certainly* next year, there is likely to be a federal law requiring new cosmetics to be pretested before they are placed on the market." Also, he said, "Under the new chairman, Paul Rand Dixon, you can expect the Federal Trade Commission to be more vigorous than it has been in the past, and to attempt to make decisions more promptly than heretofore in cases involving advertising and promotions, anti-trust matters, and mergers." ★

A STATISTICAL study of aerosol shaving creams to determine the effect of seven variables in the formulations was reported to the Scientific Section of the Toilet Goods Association by Phyllis Carter and H. Mack Truax, of Atlas Powder Co., Wilmington. The seven variables studied included the following:

1. soap type
2. soap concentration
3. fatty acid type
4. fatty acid concentration
5. propellant type
6. propellant concentration
7. additives.

The Atlas researchers reported that the performance of 67% of the shaving creams tested was directly attributable to the effects of ingredient choice. For their tests Miss Carter and Mr. Truax changed all factors simultaneously to give a more measureably accurate end result. The purpose of the tests was to screen a number of factors and determine their effect on the various variables.

Among the results of the study were these:

The differential effect and the foam density were greater for the fluorinated hydrocarbon propellant.

The number of shaves was increased by increasing the soap concentration and converting to fluorinated hydrocarbons.

No measureable effect was demonstrated by an interchange of Sorbitol and glycerine.

The effect on fluorinated hydrocarbons is greater after one week. ★

Aerosol Insecticides

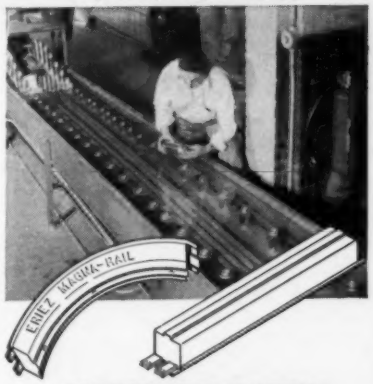
(*From Page* 41)

treat only one-half as much space as a Grade A insecticide."

Turning to the subject of recent improvements in aerosol dispensing, Mr. Odeneal cited the development of low-rate and metered units, and mechanical break-up buttons, as examples of valve improvements that have helped the marketer of aerosol products. Also mentioned were new container materials and sizes, and the

ERIEZ *Magnetic Minute*

60 seconds that will help you improve operating efficiency.



MAGNETIC POWER SPEEDS CANS THROUGH MOST ANY OPERATION

Through leak test tanks, under hot water, straight up or down steep inclines, around corners . . . run your cans anywhere. Eriez permanent magnetic Magna-Rails — installed behind conveying lines — will hold even light weight aerosol cans of various sizes securely, at high speeds.

One versatile Magnetic conveying line will handle most any size, shape, and weight of container. No need for time consuming mechanical changeovers for handling different size cans. And any can may easily be plucked from the belt for inspection.

Magna-Rails are available in straight and curved (transition) sections. You can install them easily for fast conversion of existing conveying systems into magnetic conveyors or elevators, or on new lines. Erium® magnetic power provides non-slip control at high speeds, even up near-vertical inclines. You can convey on top **and** bottom sides of lines; automatically turn cans over; change direction of flow.

Full technical data, engineering counsel and application ideas are available on request. Write to:

ERIEZ MANUFACTURING CO.
205T Magnet Drive, Erie, Pa.

MAGNA-THOUGHT

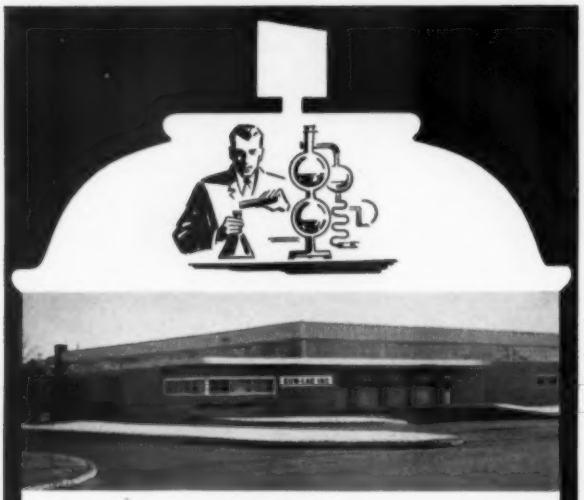
Creative imagination, combined with quality of raw materials and integrity of service are the foundations of Eriez success.

C. B. Giermak

CHESTER GIERMAK
Sales Manager

ERIEZ

A GROWTH COMPANY...
10 NEW PRODUCTS IN THE LAST 5 YEARS



SUN-LAC EXPANDS TO FILL GROWING AEROSOL PACKAGING NEEDS

Whether you market perfumes or insecticides, cosmetics or specialties—Sun-Lac offers answers to your every aerosol packaging problem.

The completion of our new plant in Clark, New Jersey provides the most up-to-date production and laboratory facilities to . . .

- Produce new, tested, water based formulations
- Pressure and cold fill upwards of 30 million units per year
- Handle long or short production runs at a saving to you
- Provide precise quality control
- Develop specialized formulations to suit your product line

From product packaging to distribution, Sun-Lac's entire operation is geared to help you go places in the ever increasing aerosol market.

For complete information on how Sun-Lac's expanded facilities can help you—write, wire or phone . . .

SUN-LAC, INC.

195 Terminal Ave. • Clark, New Jersey

FUlton 1-7500

AEROSOL Bouquets

that have proved their effectiveness in the production of the best selling industrial and consumer products

- MINT BOUQUET no. 3121
- APPLE BLOSSOM no. 3122
- OIL SWEET PEA no. 3123
- OIL WISTARIA no. 3124
- OIL GARDENIA no. 3125
- OIL BOUQUET E.T. no. 3126
- OIL BOUQUET P.C. no. 3127
- OIL BOUQUET H.D. no. 3128
- OIL BOUQUET K.L. no. 3129
- OIL BOUQUET H.C.S. no. 3130
- OIL BOUQUET FLORAL no. 3576

Make full use of the extensive research facilities of

Florasynth LABORATORIES, INC.

EXECUTIVE OFFICES:
900 VAN NEST AVE., (BOX 12) NEW YORK 62, N. Y.
CHICAGO 6 • LOS ANGELES 21
BOSTON • CINCINNATI • DETROIT • DALLAS
NEW ORLEANS • ST. LOUIS • SAN FRANCISCO
Florasynth Labs. (Canada Ltd.) • Montreal • Toronto • Vancouver • Winnipeg
Agts. & Dist. in Mexico-Drogueria & Farmacia Mex. S.A., Mexico 1, D.F.
Sales Offices in Principal Foreign Countries

introduction of such propellants as the compressed gases and the liquefied petroleum propellants to produce acceptable spray patterns. "Current research indicates that, in many instances, formulations can be developed at considerable savings without reducing toxicant content, through the use of water and other inexpensive diluents in combination with various propellants." ★

Residual Sprays

RESIDUAL sprays should bear labels which *emphasize* the need for repeated application as often as necessary since residual effectiveness will be governed by the types of surface to be treated as well as the cleaning of treated surface, urged J. E. Bussart of the Velsicol Chemical Corp., Chicago, in a paper titled "Residual Sprays—Formulations Up to Date."

Several insecticides have been used in the control of various household insects with pressurized type dispensers applying a residual type spray. Some of the materials, listing the maximum allowable concentrations, are:

Chlordane (Spot Applications)	3 %
DDT (General Treatment)	.6 %
Dieldrin (Spot Application)	.0.5%
Dilan (General Application)	.3 %
Heptachlor (Spot Application)	0.5%
Lindane (Spot Application)	.5%
Malathion (General Treatment)	2 %
Malathion (Spot Application)	.5 %
Methoxychlor	.6 %
Ronnel (General Treatment)	.2 %
Ronnel (Spot Application)	.5 %
TDE (General Treatment)	.6 %
Toxaphene (Spot Application)	.6 %
Repellent Additives	
MGK R-11 (Spot Application)	.5 %
Tabatrex (Spot Application)	.5 %

Other products containing materials such as diazinon, dicapthon, etc., have been used, but this is currently restricted to professional applications by pest control operators or public health officials. These pressurized type dispensers frequently contain a combination of pesticidal ingredients together with synergized pyrethrins and thiocyanates. Some combinations may be used that require the concentration of these ingredients to be proportionately reduced. Regardless of concentration of the materials formulated alone or in combinations, it is required that they produce a residual deposit to give effective insect control of all treated surfaces."

Mr. Bussart emphasized that residual spray dispensers should give adequate directions for use against all of the insects named on the label. ★

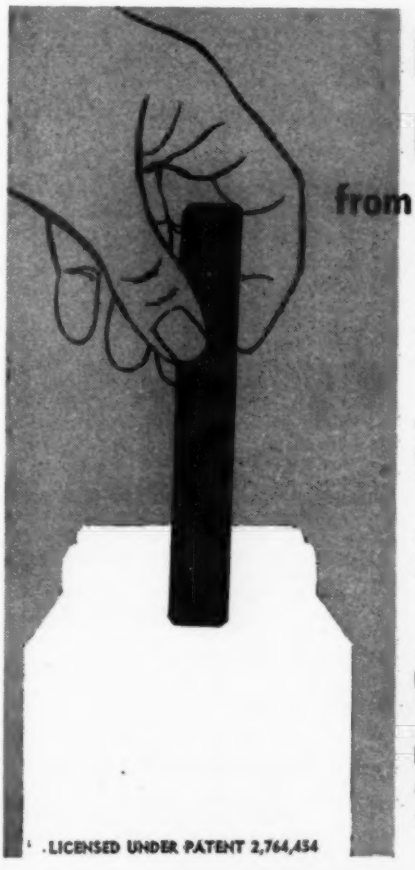
House and Garden Products

THE CHIEF problem in formulating a house and garden aerosol insecticide is to select a formulation which will perform properly in both its intended uses without phytoxic effects on the plant life in the garden, declared Eugene F. Mace, S. C. Johnson & Son, Inc., Racine, Wis. in a paper on "House and Garden Insecticides" given before a joint meeting of the Aerosol and Insecticide Division. "Plant damage, mainly because of consumer misuse, is a major factor in formulating these products," Mr. Mace said. "The consumer tends to spray first and, if some damage has been done, *then* to read directions."

With aerosol dispensing in relation to garden plants, Mr. Mace pointed out, a real danger of plant freezing exists because of too-close spraying. "As an example of this," he said, "five seconds of spraying at a distance of three inches from the plant will reduce its surface temperature from 80 to 32°. 12 seconds at six inches or 60 seconds at 12 inches will have the same effect."

He reported that his company has discovered that much of the plant damage attributed to aerosol sprays is rather a direct result of this type of mis-use, or from the fact that the plant had previously been too seriously damaged by insect infestation before the product was applied.

Mr. Mace said the chief trouble in the phytotoxic consideration of a formulation comes not from the insecticide materials, but from the solvent or carrier. Oils greater than 1 to 2% should also be avoided,



SNOW
from a
SOLID STICK

All the solids are formulated in this single stick which you simply drop into your container before adding your propellant and valve.

You get these important advantages:

- Amazingly simplified production process. No dust or boil-over. No mixing of powders.
- Gratifying savings in costs.
- Precision cold or pressure filling.
- Standard colors are WHITE, RED, and BLUE. For special colors, please send sample for matching.

For further information and samples, write to

BALTIC
CHEMICAL CO., INC.
115-119 Fourth Ave., Brooklyn 17, N. Y.
NEvins 8-6401

Now—a good aerosol can coder for only $395*!

SIMPLE! SELF-POWERED! COMPACT!

Gottscho "Sideline" Markocoder® Conveyor-Line Attachment

• Foolproof . . . automatic — marks concave can bottoms at speeds to 150 per minute. Easy to install anywhere on the line. Requires no power. Uses quick-change rubber type. Sanitary design . . . for wet or dry areas.

*For any single specified can size. Change parts for other sizes available at additional cost.

First and foremost in automatic production-line CODING, MARKING and IMPRINTING machines

Gottscho®

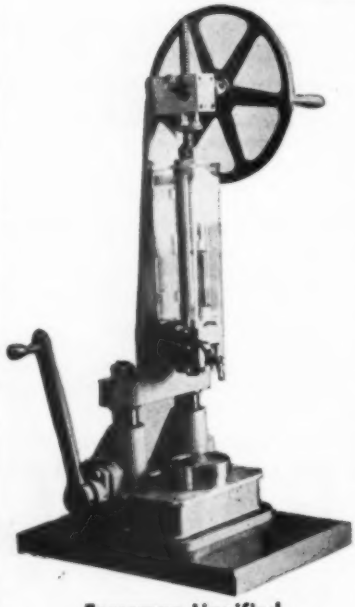
Write today for Bulletin "SLM"

GOTTSCHO, Dept. X • **HILLSIDE 5, N. J.**

In Canada: Richardson Agencies, Ltd. • Toronto & Montreal

DEVELOPED FOR THE CONSULTING LABORATORY, THIS APPARATUS, IS THE ULTIMATE IN FUNCTIONAL DESIGN AND PERFORMANCE

Our apparatus division has been set up to make all items available to the industry. Prices and descriptive literature on request.

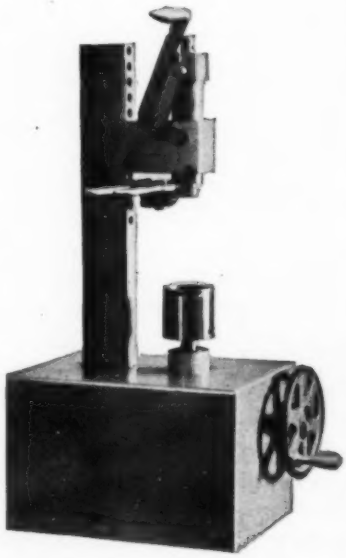


Foresman Liquified Gas Manipulator

APPARATUS AVAILABLE

Liquified Gas Manipulator w/Universal Head
Propellant Manifold for Manipulator
Hand Operated Vial Capper
Change Parts for Vial Capper
One inch opening Can Closing Press
Hydrostatic Test Units
Karl Fischer Pressure Titration Cells
Dead Stop Indicator for Karl Fischer Titrameter
Density Units
High Pressure Test Bombs
Can Sampling Units—Piercing or Valve Actuating
Pressure Gauging Unit—Pressure Balance or Water Filled
Test Ovens—Standard or Custom Built
Instantaneous Chiller Units—Mechanically Refrigerated
Electric Hot Water Test Bath
Hot Water Bath Transfer Baskets Safety Top Tank Racks
Table Tank Rack Combinations
Safety Screen Tubes for Glass Pressure Tubes
Plastic Protective Screens
Gloves and Masks

Apparatus Division
ROBERT A. FORESMAN, JR.
(Aerosol Consultant)
1690 Margaret Street
Philadelphia 24, Pa.



Foresman Hand Operated Vial Capper

he advised, for the same reason. To determine the phytotoxicological effects of a particular product, he suggested tests should be extended to the point of damage — so that the marketer will know how much misuse will produce plant damage. He pointed out that the greenhouse provides a far more valid arena for testing these effects than does a laboratory provided with artificial light. ★

Aircraft Insecticides

FINE particles with a range of 2 to 5 microns in diameter are as effective on house flies as medium-sized aerosol particles 15 microns in diameter, provided that an exposure time of at least 30 minutes can be used. This observation was reported in a paper titled "New Methods of Aerosol Application" by A. H. Yeomans and R. A. Fulton of the Entomology Research Division, Agricultural Research Service, USDA. The paper was part of a symposium on aerosol insecticides given before a joint session of the Aerosol and Insecticide Divisions.

The main portion of the paper, delivered by Mr. Yeomans, was concerned with a description of some of the devices used to dispense aerosol insecticides in jet aircraft and smaller passenger planes. He declared that "using the entire contents of a container is often the best way to make effective application of an insecticide. In this way a known quantity of insecticide can be applied, which is especially important when the treatments must be made by unskilled or disinterested help."

Mr. Yeomans reported that the USDA has developed a breakoff nozzle for the one-shot aircraft dispenser in which the nozzle has no function in atomizing the spray but is connected with a capillary siphon tube "whose ratio of inside diameter to length will produce boiling and thus atomize the contents into particles within the aerosol range." He explained that this type of nozzle is well suited to be activated by a delayed action or remote control breakoff mechanism, thus permitting treatment without exposing the operator to the aerosol and eliminating the need for protective devices. These units, he explained, can be activated by electric solenoids that release a spring breakoff mechanism.

"The 10-cc. dispensing unit we have been testing is equipped with a siphon tube with a length of two inches and an inside diameter of 0.020 inch. When broken, the breakoff nozzle has an opening of 0.030 inch in diameter. One of the standard formulations used in these dispensers contains 500 mg. of 20% pyrethrins, 100 mg. of 90% allethrin and propellants 11 and 12 in a ratio of 30:70 to make a total of 10 grams. This combination produces a particle size with a mass median diameter of 15 microns, with 80% of the particles smaller than 30 and all less than 50 microns.

". . . We have used this breakoff nozzle on the ethylene oxide dispensers developed with military funds. The capillary siphon tube in these dispensers is six inches long and 0.040-inch I.D., and produces a fine spray when the nozzle is broken. The fine particles reduce the danger of depositing high concentrations of liquid on articles to be sterilized. The siphon tube is also equipped with a ball weight so that the contents can be emptied when the container is placed at any angle."

Mr. Yeomans reported that the one-shot valves currently on the market are satisfactory in performance but more difficult to activate by delayed action or remote control. He also said that improved metering valves have proven useful and their outputs "fairly reliable when the equipment is properly used."

He said that the mechanical break-up valve tip is becoming more important for residual application, since it produces a slightly wider spray with the momentum of the spray reduced. "Our tests show that use of the mechanical break-up tip for spraying at distances greater than 12 inches does not give as high a percentage of deposit as the standard type tip. How-

we certainly c.s.m.a. *(can supply more aerosols)*

Yes—we can supply more aerosols. We're expanding again. Just added another 34,500 sq. ft. of space for more aerosols—in number—and type.

Talk about a diversified product my. We package hair sprays, glass cleaners, insecticides, room deodorants, starches, perfumes, colognes, paints, starter fluids, waxes, cleaners, refrigerants and carbonated beverages (canned), and the list goes on and on. We fill aerosols—by the millions.

Propellants? Fluorocarbon, hydrocarbon, CO_2, N_2, N_2O—along with some exotics if needed.

Services? Filling, formulating, mixing, shipping, warehousing and willingness.

Formulas? All kinds and better.

Facilities? All you'll ever need—and then some. . . . Pay us a visit and see. We love to chew the rag anyway.

John Marana and Pete Clapp were in Chicago attending the CSMA meeting looking for you—just to say "hello". If they missed you, why not plan on getting acquainted at the December meeting?

And remember, we certainly C.S.M.A.

You've probably heard of us. Western Filling. We're at 6423 Bandini Blvd., Los Angeles 22, Calif. Phone No. is RA 3-9177. We solve problems and we're real friendly.

CAPITOL DOES IT ALL IN AEROSOL!

- ✓ PRODUCT R & D
- ✓ RIGOROUS QUALITY CONTROL
- ✓ ECONOMY
- ✓ GUARANTEED SATISFACTION
- ✓ CONFIDENTIAL SERVICE

- Newly-built modern plant equipped to handle large or small runs for any customer in a hurry—from household cleaners and protective coatings to cosmetics and shaving creams.
- Complete research and quality control facilities under direction of qualified chemists and engineers.
- Extensive warehousing, drop-shipping facilities available in our own spacious plant.
- Conveniently located in Chicago suburb, near Illinois tollway intersection, for fast truck shipping.
- Exclusively private label—Capitol markets no products of its own.

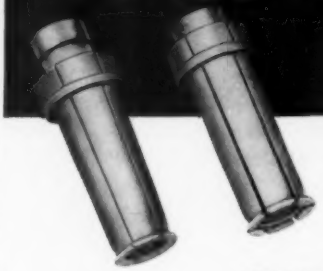
WRITE OR CALL FOR COMPLETE DETAILS

CAPITOL

PACKAGING COMPANY

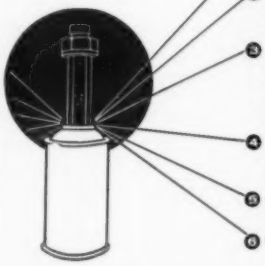
1501 North 31st Avenue • Melrose Park, Ill.
Phone: COlumbus 1-6295

The AMCO STANDARD 1" CRIMPING COLLET



Durable
Accurate
Economical

$65.00
WITH PLUNGER



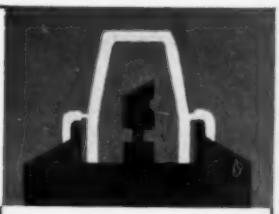
1. Standard crimping collet for any size can with 1" valve mounting cup.
2. Manufactured to standards set up by CSMA; may be used as replacements for crimping jaws of most other manufacturers.
3. Collets and plungers made of special alloy steel and are matched in hardness to increase wear resistance of working surfaces; work fatigue is minimized at pivot area by controlled heat treatment.
4. Segments are precision ground to the true diameter in the expanded position to insure a uniform crimp.
5. Collets are manufactured to full crimp diameter for maximum wear.
6. Guaranteed not to pick up.

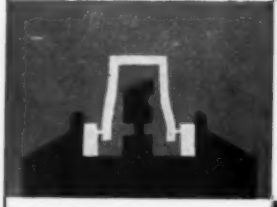
We'll be glad to send one for examination.

AEROSOL MACHINERY CO. MAKES A COMPLETE LINE OF STANDARD AND SPECIAL AUTOMATIC, SEMI-AUTOMATIC, AND LABORATORY MACHINERY FOR CANS AND BOTTLES

AMCO **AEROSOL MACHINERY CO.**
80A MAGNOLIA AVE., WESTBURY, L. I., N. Y.

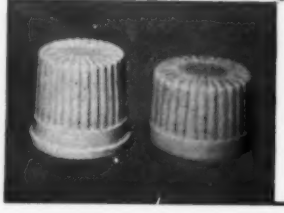
Plastic aerosol caps





Tamper-proof caps sitting inside or outside

Cover caps
55 x 40 mm
32 x 24 mm



Vereinigte Aluminiumfabriken
RISTAU, PIEPER & CO.
Lüdenscheid / Westf.
— Germany —

NEW SUBSCRIPTION ORDER

Please enter my subscription to AEROSOL AGE as marked below:

	DOMESTIC	CANADIAN	FOREIGN
1 Year	☐ $3.00	☐ $4.00	☐ $ 7.00
2 Years	☐ $5.00	☐ $7.00	☐ $12.00

Name.....

Company.....

Address.....

City..... State.....

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD

First Class Permit No. 80 Caldwell, N. J.

AEROSOL AGE

P. O. Box 31

Caldwell, N. J.

ever, testing the product for percentage of deposit at the distance at which it will normally be used is very important. If the deposit at that distance is less than 70% of the nonvolatile contents, the formulation, valve, valve tip, or all three should be changed to give at least 70% deposit at the designated distance. Also, the label on the product should clearly state the distance to be maintained when applying the product. ★

"Inform the Consumer . . ."

"THERE is more consumer ignorance about insecticides than almost anything else you can find in the modern supermarket. There is also more confusion at the insecticide display . . . confusion between products of the same manufacturer . . . confusion between competing brands." This statement was a highlight of a paper titled "A Consumer Looks at Insecticide Marketing" by Andrew B. Meldrum, Meldrum and Fewsmith, Inc., Cleveland, O., delivered before the Insecticide Division of the CSMA.

"Because of self-service, and because of the confusion in consumers' minds, it is my feeling that the biggest—and one of the easiest—areas where you insecticide manufacturers can help yourselves is in the way you *package* your products. I'm not talking about the overall design or color or attractiveness. In most cases, your packages look just as modern as any. But you have a different problem—that of answering consumer ignorance. Before a customer buys any product, he wants to know the answers to three questions:

(1) What is it for?
(2) How do I use it?
(3) What results can I expect?"

A translation of these questions to the insecticide package, Mr. Meldrum suggested, reveals few answers to these questions. He reported a taped conversation with a salesgirl in which she displayed little knowledge of any of these questions. This proves, he suggested, that "manufacturers can no longer assume that sales people will do a careful or intelligent job of explaining their products."

"More and more, your package will determine what happens at that vital point of sale. Answer the consumers' questions, and increased sales will be your reward. Why not tell us how your product works. Does it kill only on contact, or while the spray is still wet? Does it do anything to get at the source, like the poison the ants eat and take back to their nests? And what is the difference between the house and garden killer and the ant and roach killer? There isn't one consumer in a hundred who—looking at two typical packages—could tell the difference. I know, of course, that your formulations are on the back . . . but a consumer is *not* a chemist!

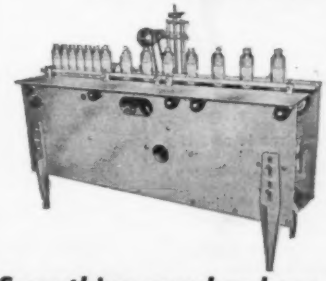
"Is there more of a certain type of ant poison in the ant and roach killer than in many cases?—but the ant and roach killer is stronger and recommended for more serious problers—again, why not say so?"

The remainder of Mr. Meldrum's paper was devoted to photographic slides showing typical displays in self-service food and drug stores. By use of these he demonstrated the "same-ness" of the various competing brands in answering the key questions. He complimented Boyle-Midway's "Black Flag Ant & Roach Killer" for telling the consumer how long the material will last. He charged that even major marketers of insecticides are "turning over the job of writing the small print on the backs of insecticide packages to guys in an advertising department. The result is a rewrite of what your competitors are saying. You certainly are not getting any original ideas, related to what consumers want to know."

Mr. Meldrum also expressed surprise at how little advertising there is done on insecticides in magazines. He suggested that insecticide marketers are missing a bet by not advertising in such household publications as *Better Homes & Garden, American Home, Good Housekeeping,* and *House and Garden.* ★

KIWI®

AEROSOL CODE DATING EQUIPMENT
that has *earned* industry acceptance



POWER DRIVEN CODER

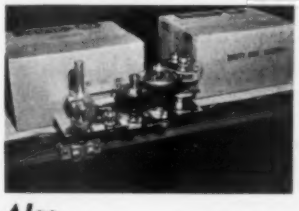
With work table area.

For automatic code dating of concave bottoms of aerosol cans.

Will mark top, bottom, or both at the same time.

No change parts needed

Something new has been added . . .



NEW KIWI® AUTOMATIC CODE DATER
Mounts on Conveyor Line or Case Sealer

Uses ink reservoir system. One internal inking with poly squeeze bottle lasts from two to four weeks, or 25,000 to 150,000 impressions, depending upon the amount of printing required.

Average cost of ink for one code dater for one year is about $3.00

KIWI® sponge inkers last one to three years and can be repadded at very low cost.

Right or left hand mounting.

Also . . .

case printers for consecutive numbering or printing information on cases

KIWI® CODERS CORPORATION

Dept. AA, 4027 N. KEDZIE AVE. IRving 8-5117 CHICAGO 18, ILL.

druk pak INC.

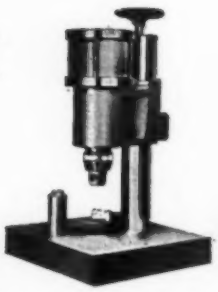
Supplying internationally for aerosols

- Laboratory Equipment
- Production Machines, All Types
- Formulations and Concentrates
- Plant Layout — Consultation

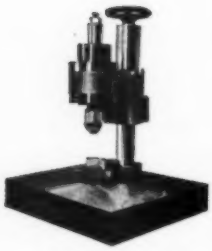
1. Laboratory Clincher DP-104 Inter-changeable Tools for Metal Cans and Glass Bottles.

2. Laboratory and Small-Run Pressure Loader DP-110

3. Propellant Pump WM-DP 385 Fully automatic, compressed air operated. Empties cylinders, mixes propellants, guarantees liquefaction.



4. Valve Clincher WM-DP 350 Semi-automatic, compressed air operated. Capacity: 28-30 per min.



5. Nitrogen Gasser WMP-DP 390 Semi-automatic, compressed air operated. Capacity: 28-30 per min.

Catalogues and Prices on Request

Manufacturer:
Johann Waldherr O.H.G.
Kafertaler Strasse 162
Mannheim, Germany

Sales Representative:

druk pak, inc.
Limmatquai/
Rossligassi 8
Zurich 1
Switzerland

For tomorrow's Container and Aerosol styling. Stop at the signpost of package progress!

Look to MF

the future symbol of broad dimensions in aerosol package design. Created through cooperative teamwork in every phase of manufacture...design—fabrication—finish—decoration—delivery.

MF container specialists...have skill and integrity to create with tomorrow in mind for Beauty and Quality.

MF container specialists...have modern facilities to give your container a custom finish.

MF container specialists...have experienced hands to follow production through to scheduled completion.

MF container specialists...are ready to develop a practical, economical solution to your future Package Problem.

Keep your eye on MF your future safeguard to creative aerosol containers and accessories.

Metal Fab FEATURES:

- A MODEL SHOP—where authentic scale models are made for sales and market testing.
- ALL SIZE container packages and accessories.
- ALL METALS—stainless steel—aluminum—brass—steel.
- ALL FINISHES—buffing—lacquering—enameling—silk screening—banding.
- ACCESSORIES—largest selection of aerosol caps—bottle closures—flaconettes—perfume funnels, etc.

Phone Weehawken, N.J., UNion 6-1277 for further information, or write to Dept. AA-6

MF Metal Fabrications INC.
202 Cherry Street - Waterbury, Conn.

National Sales Agents • MONROE-DANFORD & CO., 974 Boulevard East P. O. Box 807, Weehawken, N. J.

Perfumed with Mother's insecticide I will certainly impress him!...

PERFUME COMPOUNDS FOR AEROSOLS

DE TRÉVISE

42-48, Rue de la Reine Henriette — COLOMBES (Seine) FRANCE

Cost Reductions

(*From Page* 38)

formulations; each for a 14.0 av. ounce fill using 15% active toxicant and 85% propellant. The formulas, with the estimated cost were given as follows:

	Formulation Per Cent		*Cost Per Case*	*Savings Per Case*
A.	85	Propellant 11/12	$2.08	....
B.	42.50	Propellant 12	1.88	$.20
	21.25	Propellant 11		
	21.25	Methylene chloride		
C.	42.5	Propellant 12	1.68	.40
	42.5	Methylene chloride		
D.	10.0	Propane	1.32	.76
	40.0	Propellant 11		
	35.0	Methylene chloride		

British Firm Is Incorporated

A new firm to manufacture, wholesale, export, import, distribute and deal in aerosol packages, and to be aerosol custom fillers, has been incorporated in England under the name of Middlesex Aerosols Ltd. M. F. Flint, 3 Gray's Inn-Pl., London W.C. 1, is the incorporator.

New Hydrocarbon Line

(*From Page* 42)

detection devices built into the structure.

Second unit of the "outdoor" line is a steam power plant, also entirely new and of brick construction. Steam produced here carries out three functions: through a heat exchanger it maintains the 130-150° testbath water. In cold months it also has the function of heating the air which is continuously filtered through the filling room and it is available for use with any formulation needing processing heat.

Several hundred yards away from these two units is a large wire and concrete gas storage area, which, like the production gassing room and power plant is capable of expansion when needed.

INSTALLATION of the new facility was preceded by careful studies by Stalfort's chief of engineering, John I. Stalfort, who visited other hydrocarbon filling installations. Mr. Stalfort and his engineering associates sought maximum safety in the filling operation and as complete safety in using the tricky hydrocarbon gases as modern devices could provide. Safety more than any other consideration determined the design of the filling room. Engineers familiar with air movement problems were brought into the picture; MSA air monitoring instruments used in many hazardous operations have been included. Installed in another area, "probes" pick up air in lower levels of the gassing room and carry it to the MSA appliances for analysis.

The room is a four-door, daylight type, with flooring (of sparkproof construction), raised several inches above the concrete flooring of the platform upon which it sits. All inside equipment is explosion-proof.

After exhaustive researches in the air movement necessary to carry off hydrocarbon gas along the flooring, including assistance from the Phillips Petroleum Co., makers of liquified petroleum hydrocarbons, fabricators and design engineers installed air intake and exhaust fan units with baseboard ducts at the floor level. The air analyzing equipment including warning devices is set to operate at a range of 20% *below* lower explosive limits.

The controlled air movement system maintains a 24-hour, seven-day-a-week surveillance over the hydro-

carbon room atmosphere. Any trace of gas escaping from the filling equipment is detected before it reaches explosive amounts. ★

Compressed Gases

(*From Page* 38)

graphs, he pointed out that "the temporary loss of head pressure as a result of gas loss is clearly seen to take place during misuse. However, upon agitation, a new equilibrium pressure is achieved which would fall approximately on a pressure drop curve drawn for a similar product-propelled situation under normal use. Final or residual pressure for those containers repeatedly subjected to misuse are only slightly less than similar packages used normally. These results would indicate that loss of headspace nitrous oxide during misuse periods is extremely small in ratio to the total amount of propellant gas in the package, both headspace and dissolved." ★

Corrosion Inhibitor

(*From Page* 38)

spray formulations, or of room deodorants.

2. Preliminary experiments with stabilized formulations in aluminum and stabilized formulations containing water have yielded "interesting results."
3. Extensive toxicological tests at DuPont's Haskell Laboratory showed "no difference in inhalation toxicity between propellant 11 and propellant 11 plus 0.3% nitromethane."

Mr. Bower went into considerable detail in reporting the testing of nitromethane:

"In order to establish the relationships among stabilizer concentration, air concentration, can type, and storage conditions, a test pack of hair spray was prepared. Approximately 6,000 two and three-piece, half-pound tinplate cans were prepared having stabilizer concentrations of 0.15 or 0.30 weight percent and air concentrations (vapor phase) of 2, 7, or 13 volume percent. A portion of these samples was stored at 100°F., the remainder at 72°F. Containers were inspected periodically to determine the changes which were taking place in the formulation. Color, odor, and apparent pH of the contents and the condition of the container were evaluated and recorded as before.

"The most sensitive observation proved to be the odor of the concentrate. A so-called 'corrosion odor' appeared very early in the deterioration process. This odor development was correlated with apparent pH when no stabilizer was present, becoming obvious when the pH fell below 3.5. In the presence of stabilizer, *no* odor change could be detected in any samples. Changes in the apparent pH were smallest with stabilized samples in three-piece containers. More important, the pH of stabilized samples was *invariably* free from the erratic behavior often seen in unstabilized formulations.

"Color changes were recorded but were not considered significant since some other form of failure usually occurred first. Analysis of the data obtained from storage tests at 100°F. showed that with well-purged (2 volume percent air) uninhibited hair spray, a 60% failure rate occurred within two months because of objectionable odor development.

When air was present at 13 volume percent in the vapor phase, 5% failed at five months because of objectionable odor. When nitromethane was present *no* failures were observed after eight months' storage." ★

Aluminum Cans

(*From Page* 37)

or cup within the storage period. The tendency towards corrosion appears to vary directly with increasing water content; the type of attack is that of broad shallow etching. No can failure occurred." From this the authors conclude that only the commercially anhydrous alcohol should be considered as satisfactory for packing tests with aluminum.

Turning to compressed gases, the authors tried distilled water pressurized with nitrogen, nitrous oxide, and carbon dioxide. The first two of these, they reported, caused "heavy general corrosion and a serious pressure build-up in the cans due to generation of hydrogen." Carbon dioxide, on the other hand, caused only a very light staining, with no attack on the aluminum, and was judged to-

ILLBRONZE BRAND

IMPECCABLE AEROSOL PAINT PACKAGING

Pioneers and specialists in paint packaging.

Offering the finest private label and custom filling facilities.

Complete quality control and development laboratories.

ILLINOIS BRONZE POWDER CO.
2023 S. Clark St., Chicago, Ill.

AFTER ASPIRIN ...WHAT?

If you have an aerosol product that needs refining, lifes probably not a bed of roses. It may be more like a bed of neuroses. We at NATIONAL are not doctors, but our special skill, technical know-how, and years of experience has helped many a client to forsake the aspirin and tranquilizers and happily leave his aerosol problems in our hands. All inquiries confidential.
Speak to NATIONAL about Insecticides • Paints • Cosmetics • Pharmaceuticals • Chemical • Foam Products • Many others

NATIONAL SPRAY CAN FILLING CORP
6202 Avenue U • Brooklyn, N.Y. • CL 1-3350

PACKERS

ATTENTION MARKETERS!

The leading custom and contract fillers operating in each area are listed on the following pages.

FAR WEST

WESTERN FILLS AEROSOLS... BY THE MILLIONS

All we've got to say is on page 75

WESTERN FILLING CORPORATION
6423 Bandini Blvd., L.A. 22, Calif. RA. 3-9177

CUSTOM PACKERS
Manufacturing Chemists

•

The west's oldest and most experienced aerosol fillers

•

WAREHOUSING — SHIPPING
COLD & PRESSURE FILLING

•

PAR INDUSTRIES, INC.
2193 E. 14th ST., LOS ANGELES, CALIF.

SW AEROSOL
PAINT PACKAGING
ENGINEERS

Aerosol Packaging paints, enamels, lacquers and Related products

Newest and Finest equipment in the West. Exact quality product control

Complete modern Research Laboratory Facilities. Formula Development Experimental Work.

Call CU 3-8888 or Write

SW Aerosol Corp., 10930 Elliott Ave., El Monte, Cal.

EAST

To All Buyers of
AEROSOL PRODUCTS:

Here are the advantages of a modern manufacturing plant built upon a foundation of over 30 years experience:

1. Contract fillers of both bottles and cans.
2. Pressure and "Cold Fill" facilities.
3. Modern up-to-date, compounding facilities.
4. Complete research and control laboratory.
5. Free product development and sampling.
6. Free Products Liability Insurance.
7. Centrally located plant.
8. Our modern materials handling and shipping rooms can also handle your drop-shipments.

ASSOCIATED BRANDS, INC.
50 WALLABOUT ST., BROOKLYN 11, N. Y.
Tel. ULster 5-2900

STANDARDS MAINTAINED • FORMULAS PROTECTED • QUALITY AEROSOLS •

AEROSOL PACKAGING
LIQUID FILLING
production runs • sample runs
product formulations

pace incorporated
P.O. Box 206 • WILMINGTON 99, DEL. • EAST 8-4151

CUSTOM PACKAGING
LIQUID FILLING
(all viscosities)
specializing in
FLAMMABLE LIQUIDS
large or small runs

SLICK SHINE Packaging Company
207 Astor St. Newark 5, N. J.
Bigelow 3-7424

EAST

Old Empire

AEROSOL FILLING
SHAVE CREAM
HAIR LACQUER
COSMETIC SPECIALTIES
PHARMACEUTICAL SPECIALTIES

MT. PROSPECT & VERONA AVES.
NEWARK, N. J. • HUMBOLDT 4-2121
N.Y.C. WORTH 4-7870

Private Label and Contract Aerosol Packaging

PURITAN
AEROSOL CORPORATION

- Complete research and lab facilities
- Packaging and marketing help
- Pressure and "Cold Fill"
- Metal, Glass, or Plastic Containers
- Excellent warehousing and shipping facilities

160 WASHINGTON ST. NORTH
BOSTON 14, MASS. RI. 2-3318

Chemicals, Cosmetics, Pharmaceuticals

SUN-LAC INC.
"Successful through Service"

195 Terminal Ave., Clark, N. J.

Aerosol Packaging
Small Runs Solicited
on
Cosmetics, Creams, Foams, Perfumes, Powders, Household Items, Insecticides, Industrial Products, & Plastic Sprays.

We formulate and develop new products. Quality controlled productions; bulk storage facilities; pressure & "Cold Fill" facilities. Special plan for companies requiring national distribution. We supply samples and do experimental work at no charge. Write or phone FUlton 1-7500 for full information.

Powders—Liquids—Emulsions

EAST

QUALITY & SERVICE IN AEROSOL CUSTOM FILLING...

STALFORT PRESSURE-PAK CORP.
321 W. PRATT ST., BALTO. 1, MD.

Armstrong Laboratories

CUSTOM, CONTRACT AND PRIVATE LABEL FILLERS OF METAL, GLASS AND PLASTIC AEROSOL CONTAINERS

SEPARATE AEROSOL PHARMACEUTICAL FACILITIES

WRITE OR CALL:
ARMSTRONG LABORATORIES
421 La Grange Street
West Roxbury, Boston 32, Mass.
FAIRVIEW 3-7404

IMAGINATION • CREATION • REALIZATION

ATi

AEROSOL TECHNIQUES
INCORPORATED

Exclusively private label manufacturer of aerosol cosmetics, pharmaceuticals and chemical specialties.

Bridgeport 5, Conn. EDison 6-0176

Quality
AEROSOL FILLING

we will fill only for customers and market no product line of our own

Eska CHEMICAL CORP.
352 Livonia Ave.
Brooklyn, N. Y.
Phone: Dickens 2-5205

be the only satisfactory one of the compressed gases for this type of formulation in aluminum. But even propellant 12 with distilled water caused severe corrosion within three months, and from this the authors concluded that "this type of pack is definitely unkind to aluminum and dangerous."

Liquefied petroleum propellants, it was reported, show some promise in aluminum containers—even in uncoated ones. A water-based proprietary polish propelled with isobutane (in bare aluminum) manifested "some slight tendency to very superficial etching or staining" after one month hot storage, but the degree of attack did not increase if the storage time was prolonged. However, aluminum mounting cups were suggested as preferable to tinplate, which "rusted appreciably."

An erratic behavior toward aluminum was displayed by the ethanol-propellant 12 series. The commercially anhydrous condition produced both no corrosion *and* severe general attack leading to perforation after just one week of hot storage. "The 1% water addition eliminated the general attack completely, but permitted a slight tendency to very narrow straight-walled pits of shallow depth. No cans perforated and some cans suffered no attack.

"The 10% water addition caused a degree of pitting attack significantly more severe than that of the 1% water addition, but did not cause perforation. A tendency to mottled dark staining was noted with this 10% water series; the stain became darker as the storage time increased."

Messrs. Howe and Languedoc suggested that this erratic behavior may be attributable to a water content critically close to that which inhibits the violent reaction associated with anhydrous alcohol-aluminum combinations. As evidence of this they reported a new series of tests using ethanol-propellant 12 solutions prepared with *determined* water contents of 77 ppm, 0.56%, 0.92%, 1.21%, 1.66%, 2.76%, 4.81% and 9.87%. In bare aluminum containers, two weeks' storage of all the solutions containing 77 ppm water caused the cans to explode or to perforate and lose their contents. "After two months storage none of the cans with greater quantities of water showed serious corrosion. The addition of 0.56% water eliminated the severe general attack and, in a few cans, produced two or three shallow pits of the type and 'wormlike' shape reported by Root in his 1955 paper. This same amount and type of corrosion was

EAST

Contract Aerosol and Liquid Filling • Pressure and Cold Fill • Modern Research and Control Laboratories • Ample Storage and Shipping Facilities

Write or Telephone
FLUID CHEMICAL COMPANY, INC.
874 Mt. Prospect Ave.
NEWARK, NEW JERSEY
N. J.: HUmbolt 4-1000
N. Y.: WHitehall 3-0540

Aerosol Packaging

Here you will find the answer to your aerosol packaging problems . . . whether you need cold or pressure filling of foams, liquids or gels. You name the product and the container and we are equipped to fill it for you.

POWR-PAK, INC.
145 Howard Ave., Bridgeport, Conn.

SOUTH

We invite you to check our
• QUALITY
• SERVICE
• PRICES

Custom loaders of Aerosols...specializing in the cosmetic & sanitary supply products. Private label stock available. Strict quality controls.

Aerocos
AEROSOL CORPORATION OF THE SOUTH
P. O. Box 148 • Arlington, Tenn.

observed in the packs containing up to 2.76% water.

"The higher water contents (4.81 and 9.87%) produced the same type of shallow straight walled pits as the lower water contents, but the pits were more numerous. It is of interest that these pits contained a black deposit which, with aluminum, indicated that pit growth is greatly retarded or stopped."

Some of the other highlights of the authors' paper included:

1. There may be some substantiation of the suspicion that some of the lubricants or degreasers used in aluminum can making may *initiate* corrosion.
2. The isopropanol-propellant 12 series presents a less erratic picture than did the ethanol series.
3. Odorless mineral spirits with the halogenated hydrocarbon propellants have no tendency to corrode bare aluminum.
4. Anionic and cationic surface active agents pressurized with propellant 12 tend to produce a *general* chemical attack on aluminum and some product contamination.
5. The hair lacquer fixatives, PVP, PVP/VA and shellac in ethanol showed no tendency to induce corrosion in aluminum.
6. Propylene glycol and triethylene glycol in isopropanol are inert to bare aluminum.
7. Of the insecticides (pyrethrum, piperonyl butoxide, perthane, strobane and thanite) tested in odorless mineral spirits with at least 200 ppm water, only strobane produced a mildly corrosive solution.
8. Polar solvents appear to be corrosive to bare aluminum, but in many cases this tendency can be effectively controlled by water or other reaction inhibitors. Nonpolar solvents appear to be relatively safe as do the majority of non-metallic active ingredients. ★

Aerosol Powders

(*From Page* 37)

made of an International Model V centrifuge at 500 rpms. to produce a mildly accelerated settling test. Chlorhydrol provides an example of the type of data that can be obtained by this method, and was chosen because earlier experience had shown it to be one of the more difficult powders to package as an aerosol. Various proportions of bulking agent, in this case Santocel 54, along with an excess of propellant, were added to Chlorhydrol in compatibility tubes and the tubes were thoroughly shaken . . . The volumes were additive. This implies that the particles of bulking agent are not merely filling in the void space of the active powder, but are actually *separating* the particles from each other. Thus, the void volumes must also be additive.

"Immediately after being shaken and for a short period thereafter, the powder remained suspended. Within 72 hours, the powders settled to their bulk volume. At the end of this time, each of the tubes was centrifuged for two minutes at 500 rpm, and the tubes were allowed to stand for an additional 72 hours. No further settling having taken place, the powder levels were observed and recorded."

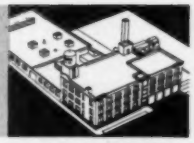
Amplifying his remarks about bulking agents, Mr. Geary suggested that any powder "lower in bulk density than about 12 pounds per cubic foot may be used, provided it is *insoluble* in the liquid components. Powders with a bulk density of one to four pounds per cubic foot are preferred (i.e. Santocel 54), in that a smaller weight of bulking agent is required to equal the void volume of the active powder. Powders may be self-bulked if a portion of the active powder is reduced to a sufficiently low bulk density. Also a portion of the bulking agent requirement may be reduced if one or more of the active powders, such as hexachlorophene, is capable of acting as a bulking agent."

Mr. Geary told how, by estimating the void volume of the active pow-

MIDWEST

PETERSON
fills both
LIQUIDS AND AEROSOLS
•
PETERSON FILLING and PACKAGING COMPANY
DANVILLE, ILLINOIS
Phone: HIckory 2-1400

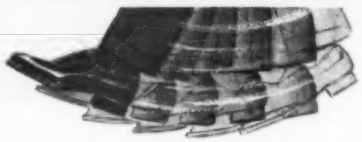
EVEREADY
for
AEROSOLS
complete private brand packaging
EVEREADY PRESSURIZED PRODUCTS, INC
1101 BELT LINE ST. • CLEVELAND 9, OHIO

ACRES OF AEROSOL PACKAGING FACILITIES

G. BARR & COMPANY
Highest standards of quality in the industry. Know-how gained in production of hundreds of millions of perfect packages. Creative research. Meticulous quality control. Full cooperation in formula and product development.
General Offices:
G. BARR & COMPANY
Private Label Aerosols
3601 S. Racine Avenue
Chicago 9, Illinois

AEROSOL PACKAGING
to fit
YOUR
PRODUCT

• No minimum run required and no maximum limit! Rigid quality control is maintained on all production, contract filling or custom packaging.
CHASE PRODUCTS CO.
Maywood, Illinois

MIDWEST



in a hurry

for quality

aerosol packaging?

CAPITOL PACKAGING COMPANY

1501 North 31st Avenue, Melrose Park
(Chicago), Illinois • COlumbus 1-6295

Aerosol Packaging

Specializing in

AEROSOL PAINTS

Enamels - Lacquers
Wrinkle and Hammertone Finish
Custom Filling
or
Private Label
Complete Aerosol and Paint
Laboratory Facilities

Cleveland Aerosol Packaging Corp.
9801 HARVARD AVE., CLEVELAND 5, O.

CONTRACT AEROSOL, L.P.G.,
& ENGINE STARTER FILLING

I-K-I QUALITY

I-K-I SERVICE

Small quantities accepted.
Prompt service with ALL orders.

I-K-I MANUFACTURING COMPANY, INC.
Phone 144
EDGERTON, WISCONSIN

GARD. A COMPLETE AEROSOL SERVICE

Product Development
Cold or Pressure Filling
Short and Long Runs
Warehousing
Marketing
Merchandising

FOR FOOD, DRUGS, PAINTS AND CHEMICAL SPECIALTIES

GARD now offers the most complete, most modern filling facilities in the industry for all aerosols from food to paint. Minimum production runs—as low as 1,000 cans to 1,000,000 and up! Air-conditioned, humidity controlled throughout.

GARD INDUSTRIES, INC.
Northfield, Illinois

der, the volume of bulking agent and liquid components can be converted to a weight basis using appropriate densities. He then demonstrated formulas for toothpowder, insecticidal powder, catamenial napkin powder, and body powder, using this new approach. ★

Hazardous Substances

(*From Page* 33)

meetings it was gathered that the chief objections in the aerosol industry were to what was termed the "excessive" label signal word display rules, plus an extension of the basic flammability test for aerosols that threatened to put many more products into the "Highly Flammable" category. The key point of controversy here is the regulations' definition of the Open Cup Flame Extension Test. Under current ICC regulations (and under the provisions of the Connecticut State Hazardous Substances Labeling Law, which is acceptable to the CSMA), the flame must extend all the way back to the actuator of the product to be classified as "highly flammable." the new regulations prescribe that a product which flashes back *toward* the actuator is so classified. ★

MIDWEST

Symbol of Experience in Aerosol Development & Packaging

for Aerosol "Know-How" Call

CONTINENTAL FILLING CORPORATION

123 N. Hazel • Danville, Illinois

SPRAY PERFUMES and COLOGNES

We specialize in the fragrance field — Colognes and Perfume novelties of all kinds — Let us help you with your perfume ideas.

Metered perfume spray containers of all kinds.

MARCY LABORATORIES, INC.
2161 No. California Ave.
Chicago 47, Illinois
Telephone SPaulding 2-3900

1960 Product Survey

(*From Page* 26)

possibly this total, some 40 million short of the generally accepted figure for aerosol-packaged foods, might be attributable to any one or combination of these three factors:

1. Stockpiling of containers by food marketers during late 1959 with an eye to the threatened steel strike. This factor alone could conceivably account for the difference.

2. The purchase of cans by food manufacturers or custom fillers giving no indication of end use of the container.

3. A general using up of inventory by food marketers in anticipation of a deepened slump in the economy last year. This was characteristic of several sectors of the U. S. economy last year.

Some justification of this approach to analyzing the difference is provided by the valve companies, which for 1960 reported a total of 788.3 million valves produced and sold. The survey adjusted figure of 670 million non-food products, coupled

EUROPE

Aerosol Filling-Station
in Austria

HUGO JANKO OHG
Head-Office: Vienna XX,
Nordwesthahnhof
Cable Address: Kaeltemittel Wien
Telex No. 1-2755

Own patents.
All filling systems (refrigeration and pressure)

Desires contacts with firms all over the world.

with the 100 million pressurized foods estimated to have been sold last year, brings the survey and valve figures very close. ★

Consultant's Corner

(*From Page* 51)

ally the one best qualified to spot the small obscure areas where it may be possible to add those single units to the day's output.

If management will light the fire of production urgency and nurture it as it grows, the greatest force for profitable aerosol production will have been set in motion. ★

Non-Food Products

(*From Page* 25)

second misuse factors for a total of 12 seconds.

It is felt that three misuse factors of four seconds each is a critical test on the performance of any aerosol product. The pressure drop curve relationships for the three and four second misuse treatments are shown in Figures III, IV, V and VI.

The curves in Figures III-VI illustrate a number of interesting factors. For example, curves plotted for number of 10-second dispensing-versus-pressure follow the same slope and pressure loss ratio regardless of whether one or three misuse factors were applied. It is further interesting to note that a misuse results in a sharp drop in container pressure. Agitation of the container after misuse brings the container pressure back to normal, but decreased levels, depending upon the length of dispensing. For example, in Figure III, a misuse for three seconds of a de-icer charged at 93 psig results in a pressure drop of 20 psig. Agitation of the container returns the pressure to 87 psig, which is close to the pressure that would have resulted after the first normal 10-second usage. The final pressure of the container with one three-second usage is 43 psig as compared to containers that have three three-second or nine-second misuses which have 36-37 psig remaining after complete removal of the product.

Figure IV illustrates a furniture polish misused for one, two or three four-second periods. It is interesting to note that Variable C (three four-second misuses) has a final pressure after complete product removal of 23 psig. It is felt that this container could be subjected to far more critical misuse than the 12 seconds applied and still remain operative. In no case were the containers tested felt to be unsaleable and each retained satisfactory spray patterns even after 12 seconds of misuse.

A very thorough study, as mentioned previously, has been conducted on misuse factors in compressed gas aerosols. Results show very graphically that compressed gas aerosols charged with nitrous oxide or carbon dioxide can be subjected to considerable misuse before operational efficiency of the container is restricted. This is especially true in products where higher solubility of the compressed gas is achieved.

Summary

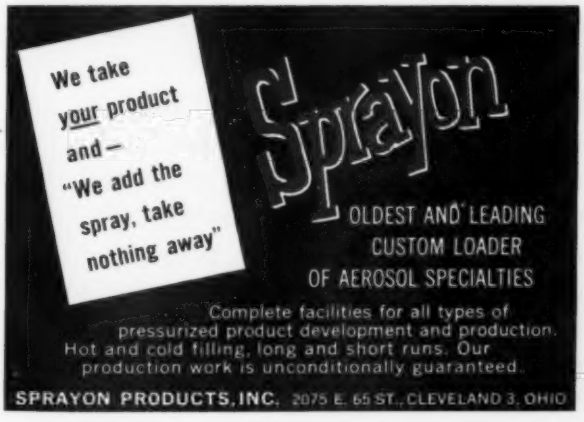
The use of compressed gases, such as nitrous oxide and carbon dioxide, for non-food aerosol packaging appears to be one of the most promising areas of growth in this rapidly expanding industry. This paper is hoped to serve as the lead into a series of three aimed at dispelling much of the confusion and misinformation that has surrounded these gases in the aerosol industry.

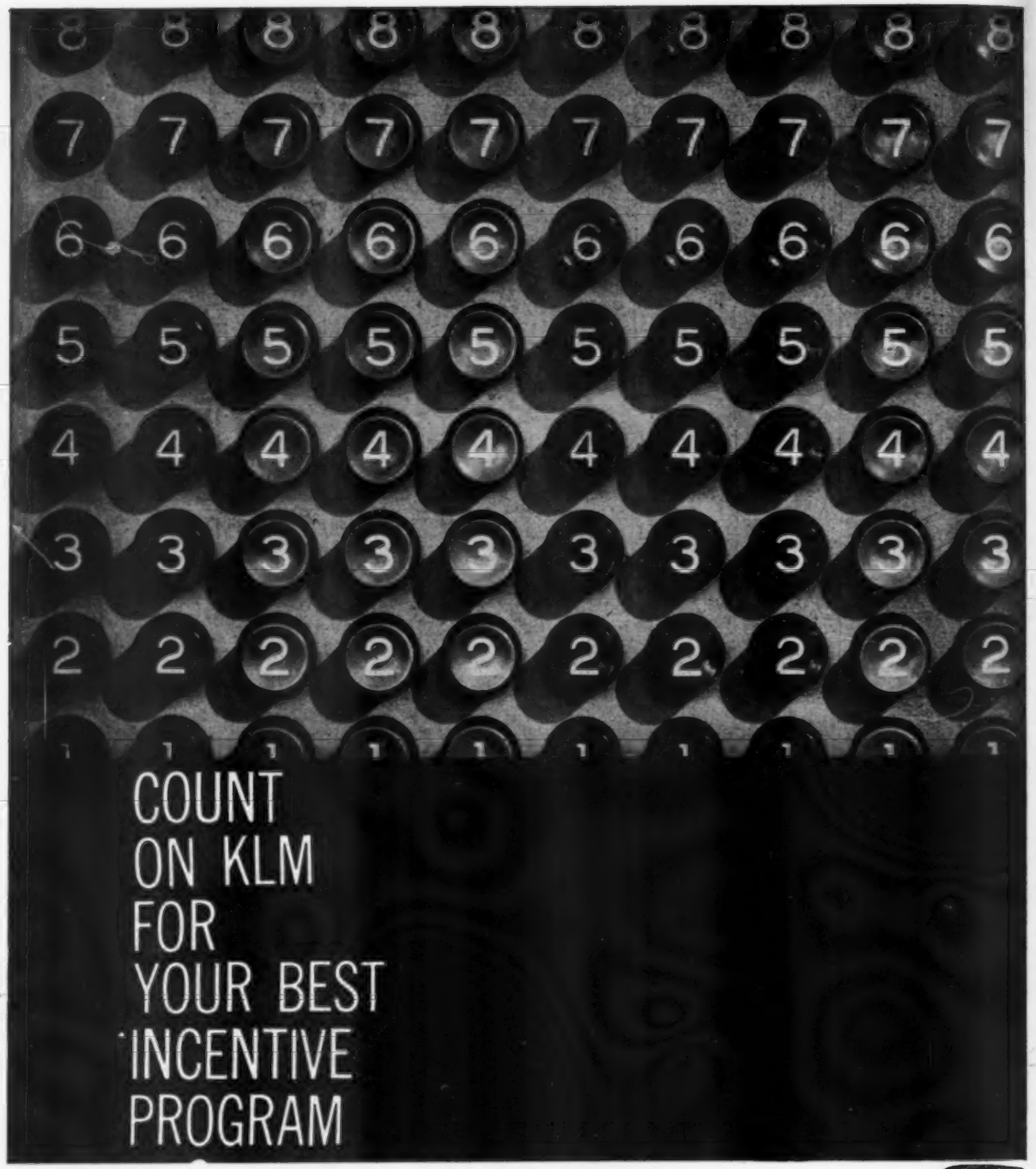
The factor of misuse of non-food aerosols is thoroughly dissected. Evaluation of two typical non-food products . . . a de-icer (carbon dioxide) and . . . a furniture polish (nitrous oxide) illustrates that even severe misuse can be applied before container failure is realized. Both product variables performed satisfactorily and were completely dispensed with 12 seconds misuse. Final container pressure of 20-25 psig were realized even with this severe degree of misuse.

One factor that we hope this and the following articles serve is to channel research efforts on these gases into the right slot. *Aerosol Age,* in its April editorial, discusses the "Gold Rush Complex." The significance of this term, in view of the tremendous surge to get carbon dioxide and, to a lesser degree, nitrous oxide aerosols into the field, is clear Proper research of both gases is needed in terms of shelf reliability and product performance. "Haste makes waste!" ★

Bibliography

1. *Aerosol Age,* 6, 22-28, 1961.
2. Gas Propellants for Pressurized Packaging of Foods and Other Products. Ohio Chemical & Surgical Equipment Co.
3. *J. Chem. Soc.* 19, 2680, 1929.
4. *Bull. Soc. Chem.* 3, 13,871, 1895.
5. V. J. Collins, Principles and Practice of Anaesthesiology, Lea & Feberger, 1952.
6. V. Henderson and H. W. Haggard, Noxious Gases ACS Monograph Reinhold, New York, 1943.
7. F. A. Patty. *Industrial Hygiene and Toxicology,* Vol. II. Interscience Publ., New York, 1949.
8. Private Communication, Food & Drug Administration, 1959.
9. Seidell, A. Solubilities of Inorganic and Metal Organic Compounds, D. Van Nostrand Co., N. Y. C., 1940.


We take your product and — "We add the spray, take nothing away"
Sprayon
OLDEST AND LEADING CUSTOM LOADER OF AEROSOL SPECIALTIES
Complete facilities for all types of pressurized product development and production. Hot and cold filling, long and short runs. Our production work is unconditionally guaranteed.
SPRAYON PRODUCTS, INC. 2075 E. 65 ST., CLEVELAND 3, OHIO



Looking for the right incentive program? Look no further! KLM offers a complete package with practical suggestions and **all the material** you will need to run a successful program. In addition, KLM has the widest choice of incentive tours: to Europe, the Caribbean, Far East, around the world. Each tour is flexible — each can be tailored to fit your company budget. For complete information, mail the coupon.

KLM Royal Dutch Airlines
Incentive Travel Department AA-61
609 Fifth Avenue
New York 17, New York

Please have a KLM specialist call on me to outline my incentive program and tour possibilities.

Name_____

Company_____

Address_____

City_____ Zone_____

State_____

THE WORLD OVER
KLM
ROYAL DUTCH AIRLINES

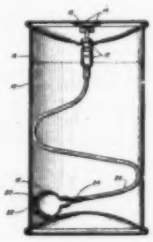
THE WORLD'S FIRST AIRLINE

New Aerosol Patents

Listed below is a brief review of recent patents pertinent to the aerosol and related industries.

Complete copies of these patents may be obtained by writing to the Commissioner of Patents, U. S. Patent Office, Washington 25, D. C., and remitting 25 cents for each copy desired.

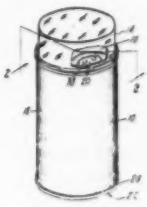
2,978,152. AEROSOL CAN. Issued April 4 to Edward G. Batty, 8611 Hartsdale Ave., Bethesda 14, Md.



An improvement for a pressurized aerosol container for prevention of valve freezing that contains a liquid fill, wherein said liquid fill consists of gases at normal room temperatures and atmospheric pressures that have been compressed into a liquid state, a valve mechanism, at least one dispensing outlet nozzle, a valve activator, and a flexible tube extending from said valve mechanism to the inside bottom of said container, said improvement comprising an expansion chamber having plural openings, one opening being connected to the end of said flexible tube, and second of said openings being submerged in the liquid fill no matter what position the container is in, an insert plug having a small aperture extending therethrough, fitted in the second of said chamber openings, said insert plug being made of a material having relatively low heat transfer properties, said expansion chamber being made of a material having relatively high heat transfer properties and also having a density greater than the density of said liquid fill, and being chemically compatible with said liquid fill.

•

2,979,193. MERCHANDISING PACKAGE. Issued April 11 to Joseph Henry Fredette, New York, assignor to American Can Co., New York.



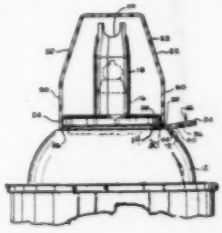
A merchandising package comprising a cylindrical container having a body wall and a top end member secured thereto in an end seam, said end member including a flat countersunk panel wall terminating in an annular channel of inverted U-shaped enclosing the upper end of said body wall, circumferentially spaced seam portions of said end member extending radially inwardly to constitute upstanding hollow locking lugs, and an inverted cup-shaped receptacle of resilient transparent plastic material seated on said end member panel wall for holding a commodity compatible with the container contents, said receptacle having a radially outwardly projecting annular bead at its open end for removable snapping engagement at random beneath said end member locking lugs for holding said receptable and its contents visible on the top of said container to promote the sale of the package.

•

Design Registration No. 190,061. HAIR SPRAYER OR THE LIKE. Issued April 4 to Douglas W. Anderson, Palatine, Ill., assignor to Burgess Vibrocrafters, Inc., Grayslake, Ill.

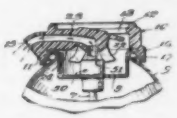
•

2,980,299. CLOSURE ACTUATOR. Issued April 18 to Robert Archer Smith, 29835 Beechwood, Garden City, Mich., assignor, by mesne assignments, of one-half to said Robert Archer Smith, and one-half to Harvey B. Whitehouse, Detroit, Mich.



A reuseable cap for a container dispensing liquids under pressure having a nozzle extending upwardly of said container, said cap having a body member formed of a plastic material for enclosing said nozzle and provided with an opening at the bottom thereof for engagement with the neck of the container, said body having a plurality of inwardly extending projections integrally formed with said body and adpated to engage the neck of the container for locking said cap to said container, a lever integrally formed with said body and extending outwardly of said body, said lever having means engaging a surface portion of said container whereby said surface portion acts as a fulcrum for said lever when said lever is depressed to cause at least one of said projections to become disengaged from said neck to permit disengagement of said cap from said container.

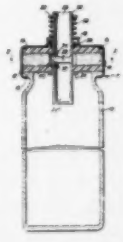
2,941,446. DISPENSING CAPS AND ASSEMBLIES CONTAINING SAME. Issued April 25 to Albert B. Campbell, Glen Ellyn, Ill., assignor to Campbell Products Co., Bensenville, Ill.



An integral, flexible plastic dispensing cap for aerosol dispenser assemblies comprising: a substantially cylindrical skirt portion with a bottom portion engageable with a dispenser container; said skirt having a dispensing opening; a depressible diaphragm extending across an upper interior portion of said skirt and resiliently hinged thereto along a part only of the internal periphery of said skirt; a collapsible resilient chambered hub projecting downwardly from the lower side of said diaphragm, said hub being collapsible upon selective depression of the diaphragm; said hub having a continuous chamber with an opening at the bottom of said hub; the lower portion of the hub contacting during operation of the cap a separate supporting surface of the dispenser that tends to restrain downward movement of the hub during depression of the diaphragm and collapsing of the hub; said hub having inwardly directed valve actuating means that is normally free of direct actuating contact with an underlying reciprocative valve stem of a valve assembly; means positioned below the diaphragm between said skirt and hub having a continuous passage communicating with said dispensing opening and said chamber in the hub; said depressible diaphragm being capable of being hingedly depressed by the application of pressure thereupon; said selective depression of the diaphragm effecting the depression of said collapsible hub and depression of the valve actuating means to a position that then depresses the underlying reciprocative valve stem, thereby causing the unseating of valve means for the discharge of contents of the container through said dispensing opening of the cap.

•

2,980,301. METERING VALVE FOR AEROSOL CONTAINERS. Issued April 18 to Benjamin de Gorter, Inc., Los Angeles, assignor to Riker Laboratories, Inc., also Los Angeles.

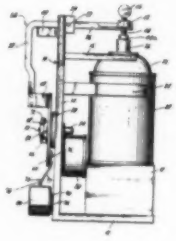


A metering valve for dispensing measured volumes of fluid material from a container comprising: a closure for closing the mouth

of a container, said closure having an aperture formed therein extending between opposite surfaces of said closure; said closure having two spaced sealing portions having bores formed therein; an intermediate closure portion positioned between said sealing portions and having a bore formed therein of greater cross-sectional area than said bores in said sealing portions; said bores, in said sealing portions and said bore in said intermediate closure portion registering to form said aperture; a plunger reciprocably positioned in said aperture with said intermediate closure portion forming a channel adjacent said plunger; said plunger sealingly and slidably engaging said sealing portions; said plunger having a hollow measuring chamber formed therein and an orifice entending between said hollow measuring chamber and the exterior of said plunger; said plunger having a hollow exit chamber formed therein and an inlet extending between said exit chamber and the exterior of said plunger; said orifice and inlet being no farther apart on the longitudinal axis of said plunger than the length of said channel in the direction of movement of said plunger so that the plunger can be moved to a position where both said orifice and said inlet simultaneously communicate with said channel; whereby said plunger can be pushed through said aperture to expose said orifice to the interior of the container with the subsequent filling of said hollow measuring chamber with a charge of fluid material, and said plunger can be moved in the opposite direction through said aperture to a position where said orifice and said inlet simultaneously communicate with said channel and a measured charge under pressure moves through said orifice, said channel and said inlet into said exit chamber.

•

2,980,296. VALVE ACTUATING ASSEMBLY FOR AEROSOL CONTAINERS. Issued April 18 to Albert L. Edelstein and Joseph Glickstein, New York, assignors to Synchro-Mist Controls, Inc. New York.



A device for automatically periodically opening the normally closed valve of a spray dispensing pressurized container, said device comprising means for supporting an actuating member mounted on said supporting means in position to engage the valve of said supported container and movable between a valve open and valve closed position, a timing motor, an energy storing weighted member having a center of gravity movable between an upper and lower position, means coupling said timing motor to said weighted member to raise said center of gravity to its raised position and to thereafter release said weighted member and permit the center of gravity thereof to substantially freely fall to its lower position, and means connecting said valve actuating member to said weighted member to urge said valve actuating member to a valve open position during the return of the center of gravity of said weighted member to the lower position.

•

2,981,654. INSECTICIDAL REPELLENT. Issued April 24 to Willis Nels Bruce, Champaign, Ill., assignor to Lee Ratner, Miami Beach, Fla.

An insecticidal repellent comprising a combination of from about 0.2% to 99.5% by weight of di-n-butyl succinate and from about 98% to about 0.5% of a chlorinated insecticide selected from the group consisting of dichloro diphenyl trichloroethane, diethyl diphenyl dichloroethane, and methoxychlor.

A Correction

In the third paragraph of the article titled "The Status and Future of Medicinal Aerosols" (on page 35 of the May AEROSOL AGE) appears a sentence which should have read: "There is NO distinction made in my definition of whether the product is intended to be sold on prescription order only or over-the-counter."

2,979,768. APPARATUS FOR EXTRUSION OF PLASTICS. Filed April 18 by George B. Nichols, 159 Homewood, Barberton, O., assignor of one-half to Robert F. Schnee, Barberton, O.

A device for the extrusion of plastic which comprises an extrusion screw rotatably mounted in a barrel, an extruder head slidably mounted over the front of the barrel with flat surfaces of each in contact with one another and adpated to slide in a plane perpendicular to the axis of the screw and substantially immediately in front of the forward end of the screw for a distance sufficient to sever a thread of plastic passing therethrough, with guide means to hold the extruder head in shearing contact with the front of the barrel as it is slid over it.

•

Lelong Joins Colgate

The appointment of Paul H. Lelong to its perfumery staff has been announced by the Colgate-Palmolive Company's Research and Development Department. Mr. Lelong, who has had broad experience in compounding new and unique fragrances for consumer products, will work in the perfumery section at the Colgate-Palmolive Research Laboratories in Jersey City. Prior to joining the company, he was with Firmenich & Co. as a perfumer for seven years.

Mr. Lelong began his career in the perfumery field with Parfumerie D'Azy in Cuba. Later, he was associated with his father in forming the firm of E. Lelong, Essential Oils, in New York City. In 1948 he closed this business to go to Warner-Lambert Laboratories as chief perfumer and, five years later, he joined Firmenich

•

ConCan's Whittall Is Dead

Frank A. Whittall, chairman and president of the Continental Can Co. of Canada, Ltd., Toronto, died recently at the age of 61. A veteran of three years wih the Royal Flying Corps in World War I, he was in the can manufacturing business since 1922, when he began as an apprentice in the Whittall Can Co., a business started by his father. In 1935, when Whittall Co. became part of Continental, he was director of sales and in 1943 was named vice-president in charges of sales for Canada. He became executive vice-president in 1951, president in 1952, and chairman in 1960.

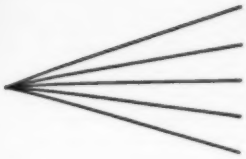
Professional Directory

SEND FOR **Free Data** *ON RESEARCH*

- ☐ Services to YOU
- ☐ FOOD FACTS • a newsletter
- ☐ Food Technology
- ☐ How to Develop Successful New Products

Foster D. Snell, inc.
CONSULTING CHEMISTS • CHEMICAL ENGINEERS
29 West 15th Street
New York 11, New York
WAtkins 4-8800
Direct Dialing Area 212
Baltimore, Md.
Bainbridge, N. Y.
MEMBER AMERICAN COUNCIL OF INDEPENDENT LABORATORIES

DAVID S. TILLOTSON
CONSULTING CHEMIST
Aerosol Packaging
Formulating—Testing—Equipment
Applications Research
Metals—Plastics—Textiles—Paper
OFFICE—8504 Germantown Avenue
Philadelphia 18, Pennsylvania
In Association with Caine Distributors
CHestnut Hill 7-9507(8)
Home Phone: CHestnut Hill 7-0938



CLASSIFIED ADVERTISING

Address all classified replies to Box Number c/o *Aerosol Age*, PO Box 31, Caldwell, N. J. Rates for "Help Wanted" advertisements are 20¢ per word; minimum charge $3.00. Rate for individuals seeking employment is 5¢ per word, $1.00 minimum. Advertisements of new machinery, products and services accepted at the rate of $10.00 per column inch. Minimum space, one inch. Copy closing date, 10th of preceding month. *Checks must accompany all orders.*

HELP WANTED

WANTED — AEROSOL PRODUCTION SUPERVISOR. Strong on management of line personnel and quality control. Write Box 252, Aerosol Age, Box 31, Caldwell, N. J.

SITUATION WANTED

PLANT MANAGER: Presently employed by leading Aerosol producer, 13 years background as plant manager, 4 years Aerosol, covering all phases of production, plant maintenance, quality control and production scheduling. Married, 40 years old, resume upon request. Address Box 252, c/o Aerosol Age.

FOR SALE

The Tiffany of the Aerosol Field

SANCO AEROSOL PAINTS

Sold in bulk to fillers only

Write or call Mr. Tanney
THE MONROE SANDER CORPORATION
10-18 46th Ave., Long Island City, N. Y.
STillwell 4-4413

FOR SALE: Model "G" Standard Knapp full wrap around labeler, ½ pint to 1 Gal. capacity. Good condition $850.00. Call or Write, Mr. Moore, Breinig Bros., Inc., 125 Grand St., Hoboken, N. J. OLfield 9-2900.

O-I Shifts Glass Division

Owens-Illinois Glass Co., Toledo, O., last month announced a reorganization of its Glass Container Division. Marketing of glass containers in the area east of the Rockies will be divided into three geographical regions—each under the dual management of a regional factories manager and a regional sales manager.

Coincident with the creation of the new regions, the company announced the appointment of Ebon C. Jones, of Toledo, as division vice president and manager of market planning and administration with responsibility for the operation of all general offices sales functions.

The six regional managers also have been named vice-presidents of the Glass Container Division. The new regions and the new regional managers are:

Eastern region with headquarters in New York City: Robert F. Miller, of New York City, becomes regional sales manager, and Earle G. Ingels, of Toledo, becomes regional factories manager. Mr. Miller now heads sales in the East and Mr. Ingels has been vice president and production manager. The Eastern region includes six plants and a major service warehouse at North Bergen, N.J. In addition to New York City, sales branches include those at Albany, Buffalo, Rochester, Baltimore, Boston, Charleston, W. Va., Cleveland, Hartford, Philadelphia, Pittsburgh, and Richmond, Va.

Midwestern region with headquarters in Chicago, Kevin K. Hepp, now beverage industries sales manager in Toledo, becomes regional sales manager, and Milan G. Kahl, now plant manager at Streator, Ill., becomes regional factories manager. Plants include those at Streator and Alton, Ill., and Gas City, Ind. Sales branches are located at Chicago, Cincinnati, Columbus, Denver, Detroit, Elkhart, Indianapolis, Kansas City, Louisville, Milwaukee, Omaha, Peoria, St. Louis, St. Paul and Toledo.

Southern region with headquarters in Atlanta: Frank Jones, Jr., now in charge of sales in the Southeast, is the new regional sales manager and Harold Ottesen, now plant manager at Charleston, W. Va., is named regional factories manager. Plants include those at Atlanta, Ga., Waco, Tex., and New Orleans (now under construction). Sales branches are at Atlanta, Birmingham, Charlotte, Dallas, Houston, San Antonio, Jacksonville, Memphis, Miami, Nashville, New Orleans and Oklahoma City.

The regional sales managers and the manager of market planning and administration will report to Sid F. Davis, division vice-president and general sales manager, while the regional factories managers will report to Miles G. Beishline, division vice-president and general manufacturing and engineering manager.

•

Canadian Tariff Held Up

A bill to give the Minister of Revenue arbitrary powers to increase certain tariffs on goods has been held up by the Canadian Senate and may precipitate a major campaign to reform the Senate. Among other things, the bill carries a controversial amendment that makes final any decision of the Minister of Revenue on goods "of approximately a class or kind" made in Canada. Chief opposition from the chemical and other industries is that the bill carries no provision for appeal to the courts.

The bill was passed in the House of Commons, but is outnumbered by 75 to 25 in the Senate, whose members are appointed for life. Prime Minister John Diefenbaker has threatened to initiate measures of Senate reform if the bill is rejected in the Senate.

The word "approximately" is the chief focus of contention in the new bill, since it would extend the "class or kind" definition to goods similar to those made in Canada. Previously, the definition has been read as goods identical to those made in Canada.

Trade Mark Applications

Applications for registration of the following trademarks were published in recent issues of the *Official Gazette* of the U. S. Patent Office. In not all cases are there strictly aerosol trademarks, however, many of the products listed below come within the category of those for which a possible future use in aerosols is foreseen.

D & S, for hair sprays and other hair products. Filed April 14, 1960 by Slater's Beauty Supply Co., Fort Smith, Ark., giving first use as Feb. 10 of same year.

MEDANE, for topical antiseptic. Filed Dec. 23 by Johnson & Johnson, New Brunswick, N. J., reporting first use Nov. 29, 1960.

MIST-ER, for cosmetic product used as an after shave lotion, skin conditioner, dedorant, body refresher, and cologne. Filed Sept. 24, 1959 by Trice Products, Inc., Brooklyn, N. Y., with first use given as June 1 of same year.

PARACHLOR, for chemical composition useful as a fungicide and an insecticide. Filed April 7, 1960 by Para-Industrial Corp., Dover, O., with first use reported as Oct. 10, 1957.

CYANI-KIL BOMB, for poison gas rodenticide. Filed April 5, 1960 by Thorn C. Long d.b.a. Long Mfg. Co., San Leando, Calif., giving first use in or about March 1948.

MULTI-SPERSE, for pigments to be used in making paints. Filed June 16 by The Sherwin-Williams Co., Cleveland, giving first use as April 13, 1960.

CATONeX, for animal repellent. Filed Aug. 18 by Hydroponic Chemical Co., Copley, O., with first use reported as July 21.

SOLV-O-MIST, for solvent to be sprayed on printing plates or the like to remove printing ink therefrom. Filed July 13 by Braco Chemical Co. St. Louis, claiming first use as April 5, 1960.

PERMA/STERILE, for germicide for household and/or industrial use. Filed March 14, 1960 by Permasterile Corp., Chicago, reporting first use as June 1959.

PERTINEX, for preparation for the treatment of athlete's foot in cream or other form. Filed Dec. 22 by American Pharmaceutical Co., New York, giving first use as Jan. 1, 1958.

IMPULSE, for perfume, cologne, and dusting powder. Filed Oct. 24 by Les Parfums de Dana, d.b.a. Dana, New York, with first use claimed for Sept. 30.

ISLAND SPICE MIST, for sachet spray and room refresher. Filed June 2, 1959 by Gold Seal Co., Bismark, N. Dak., assignee of The Andre L. Richard Co., New York, with first use reported as May 25, 1959.

RIPPLE, for colognes. Filed June 12, 1958 by Helene Curtis Industries, Inc., d.b.a Lentheric, Chicago, giving first use on or about April 25 of same year.

FUMICIDE, for fumigant incorporated as an ingredient of an antifungal powder. Filed Nov. 4 by Shulton, Inc., Clifton, N. J. with first use given as Oct. 12.

SNOW MIST, for spray-on body powder. Filed Jan. 8, 1960 by Peter Pan Foundations, Inc., New York, claiming first use Dec. 11, 1959.

IPC, for pharmaceutical preparations in in the nature of cleansers, bactericides, fungicides, and for the treatment of minor cuts, burns, and abrasions. Filed Jan. 13 by International Pharmaceutical Corp., Philadelphia, reporting first use November 1947.

CERTIFIED, for chemical compounds used in controlling dust, insect spray, disinfectants, weed killing preparations, air sanitizer deodorant spray, and a wide range of other chemical specialties. Filed April 14, 1960 by Certified Laboratories, Inc., Fort Worth, Tex., reporting first use Nov. 13, 1956.

COUNTESS, for permanent hair waving lotion suitable only for professional use in beauty parlors. Filed Sept. 13 by Helene Curtis Industries, Inc., Chicago, reporting first use on or about April 5, 1960.

AERO SNOW, for pressure-propelled paint containing acryloid resins of different colors for decorative purposes. Filed Oct. 17 by American Home Products Corp., d.b.a. Boyle-Midway, New York, giving first use Sept. 16, 1952.

VP, for plastic coating compositions sold in pressurized containers for spray application. Filed Oct. 17 by Nu-Color Corp., of America, Los Angeles, reporting first use as Aug. 16.

DIQUARTRIN and MICRIDIM, both for topical antiseptics. Filed Dec. 23 by Johnson & Johnson, New Brunswick, N. J., with first use claimed for Nov. 29.

ARISTOSOL, for steroid preparation. Filed Aug. 8 by American Cyanamid Co., New York, with first use claimed for June 27.

PAROX-EASE, for preparation for the treatment of bronchial asthma, nasal congestion due to hay fever, and nasal congestion due to sinusitis. Filed Sept. 29 by Albert Monk, d.b.a. Associated Research, Frederick, Md., claiming first use about January 1935.

DR. JONES, for powder used for acne, sunburn, cuts, burns, eczema, athlete's foot, etc. Filed Oct. 6 by Dr. Katherine Jones, Baltimore, reporting first use as Oct. 16, 1938.

BIRD IN A GILDED CAGE, for cologne. Filed Sept. 20 by Helene Curtis Industries, Inc., Chicago, first use given as Aug. 12.

MARK OF A MAN, for cologne, deodorant, perfume, and other men's toiletries. Filed Sept. 4, 1959 with first use reported as Nov. 3, 1950.

Plasti-Kote Ads on Network TV

Spray paint is now being advertised on network television for the first time. Plasti-Kote's new "Target" line has joined the family of sponsors on three ABC-TV daytime shows, according to an announcement from Elias Shapiro, executive vice president of the Cleveland aerosol paint firm. The network television campaign is part of Plasti-Kote's program to back up its distributors with a widespread advertising, promotion and public relations program.

The three shows include Bud Collyer's "Number Please," Jack Bailey's "Queen for a Day," and Johnny Carson's "Who Do You Trust." Plasti-Kote commercials will also appear on ABC's "Morning Court." Mr. Shapiro explained the choice: "We've chosen daytime TV as a vehicle for our products because, contrary to popular opinion, our research shows that the majority of household paint is purchased not by the husband, but by the wife." Except for the initial commercial which was introduced by the star of each show, the announcements will all be on film and feature a demonstration of the product involved. Mr. Shapiro indicated that he felt sales would spurt as a result of the 105-market TV effort.

•

Koppers Names Robertson

S. M. Robertson, Western district sales manager for the Plastics Division of Koppers Co., Pittsburgh, since 1957, has been promoted to the position of product manager, polystyrene. Replacing him as Western district sales manager, Los Angeles, will be John H. McSparran, who had been in charge of West Coast manufacturing and sales for the division's Durethene department.

A Correction

In the "New Products" section of the May issue of AEROSOL AGE a misleading caption is attached to the description of the new "Del-Sol" containers developed by VCA, Inc., Bridgeport. VCA is offering the complete package (container and valve) to fillers and marketers for filling and spin-welding on their own equipment. The words "complete" in this instance was misconstrued to mean "filled," which is not actually the case.

Index to Advertisers ▸▸ June 1961

—A—

Action Plastics, Inc. ..... May
Aerosol Corp. of the South 82
Aerosol Machinery Corp. 76
Aerosol Research Co. 3
Aerosol Techniques, Inc. 82
Alfco, Inc. 10
Allied Chemical Corp., General Chemical Division 30, 31
Alpine Aromatics, Inc. ..... May
American Cholesterol Products, Inc. 54
Anchor Plastics, Inc. ..... May
Arctic Lodges, Ltd. ..... May
Armstrong Laboratories 82
Associated Brands, Inc. 81

—B—

Baltic Chemical Co. 73
Barr, G., & Co. 83
Bombrini Parodi-Delfino 50
Bridgeport Metal Goods, Inc. ..... May
Builder's Sheet Metal Works, Inc. 59

—C—

Capitol Packaging Co. 76, 84
Chase Products 83
Clayton Corp. ..... May
Cleveland Aerosol Pkg. Corp. 84
Cons. Pkg. & Mach. Corp. ..... May
Continental Can Co. ..... May
Continental Filling Corp. 45, 84
Corken's Inc. ..... May
Crown Cork & Seal Co. 16

—D—

Dodge & Olcott, Inc. 57
Druk-Pak, Inc. 78
du Pont de Nemours Co., E. I. 8, 9

—E—

Economic Machinery Co. ..... May
Enjay Chemical Co. 14
Eriez Manufacturing Co. 71
Eska Chemical Corp. 82
Ets. De Trevise 78
Eveready Products, Inc. 83

—F—

Fairfield Chemical Division, Food Mach. & Chem. Corp. ..... 4th Cover
Florasynth Laboratories, Inc. 72
Fluid Chemical Co. 82
Foresman, Robert A. 74
Walter Frank Organization ..... May
Fritzsche Bros., Inc. ..... May

—G—

Gard Industries, Inc. 84
Geigy Agricultural Chemicals, Div. Geigy Chemical Corp. ..... May
Gen. Aniline & Film Corp. ..... May
Givaudan-Delawanna, Inc. 32
Gottscho, Adolph, Inc. 74

—H, I, J—

Hercules Powder Co. 36
IKI Manufacturing Co. 84
Illinois Bronze Powder Co. 80
Impact Container Corp. ..... May
Imperial Chemical Industries, Ltd. 62, 63
Int. Flavors & Fragrances Inc. 35
Island Equipment Corp. ..... May
Janko, Hugo, OHG 84
JG Machine Works, Inc. ..... May

—K, L—

Karl Kiefer Co. 11
Kiwi Coders Corp. 77
KLM-Royal Dutch Airlines 86
LeMay Machine Corp. ..... May

—M—

Marcy Laboratories, Inc. 84
McLaughlin-Gormley-King Co. ..... May
Mettler Instrument Corp. ..... May
Metal Fabrications, Inc. 78
Monobloc Aerosols, Ltd. ..... May

—N—

Nat. Chem. & Plastics Co. ..... May
National Spray Can Filling Corp. 80
Newman-Green, Inc. 13
Norda 40

—O—

Ohio Rubber Co. Division, Eagle-Picher Co. ..... May
OEL, Inc. ..... May
Old Empire, Inc. 69
Owens-Illinois Glass Co. 4

—P—

Pace, Inc. 81
Par Industries, Inc. 79, 81
Peerless Tube Co. ..... May
S. B. Penick & Co. 15
Pennsalt Chemicals Corp. 46
Penn Cork & Closures, Inc. 70
Peterson Filling & Packaging Co. ..... 3rd Cover, 83
PFW 17
PharmaPlastics, Inc. ..... May
Phillips Petroleum Co. 39
Pneumatic Scale Corp. 49
Polyvinyl Chemicals Inc. 67
Powr-Pak, Inc. 82
Precision Valve Corp. 18
Prentiss Drug & Chemical Co. 58
Puritan Aerosol Corp. 81

—R—

Risdon Mfg. Co. ..... May
Ristau, Pieper & Co. 76
Roubechez, Inc. ..... May
Roure-Dupont, Inc. 52

—S—

Schimmel & Co. 60
A. Schrader's Son Division, Scovill Manufacturing Co. 43
Seaquist Manufacturing Co. ..... May
Slick Shine Packaging Co. 81
Snell, Foster D., Inc. 88
Sprayon Products, Inc. 85
Stalfort Pressure-Pak ..... 2nd Cover
Sun-Lac, Inc. 72, 81
S & W Aerosol Corp. 81

—T, U, V—

Tillotson, David S. 88
Tube Manifold Corp. 68
Union Carbide Chemicals Div. Union Carbide Corp. ..... May
U. S. Industrial Chemicals Div. Nat. Dist. & Chem. Corp. 64
Velsicol Chemical Corp. ..... May
Valve Corp. of America 7
Victor Metal Products, Inc. 6

—W—

Western Filling Corp. 75, 81
West Penn Mfg. & Supply Co. ..... May
S. S. White Dental Mfg. Co. ..... May

Oklahoma Nullifies FT Law

The Fair Trade Act of the State of Oklahoma has been declared unconstitutional by the state's Supreme Court. In a unanimous decision in a case involving an appeal from the 1959 ruling of a district judge who had upset the retail price maintenance act, the high court ruled that the measure constituted a "price fixing scheme." Justice Denver Davison, who wrote the majority decision, declared that "the retailer who, by skill and energy, has reduced his operation expense and may be satisfied with smaller profit, is regimented with the *less* efficient and less industrious seller of the same commodity. Most important the consumer public must pay this price and is deprived of the benefit of the free and competitive economy so important to this nation." Oklahoma's law had been "on the books" for 20 years.

Spray Patterns

DESPITE failure of the aerosol industry to substantially penetrate the food field in areas other than toppings, the food industry is still very much interested in aerosols. At the May 7-11 meeting of the Institute of Food Technologists, in a booth jointly sponsored by nine aerosol companies and the CSMA, interest in the marketed and experimental products was far higher than it was in a similar booth three years ago. This time the food technologists seemed far more knowledgeable about aerosol components and systems, and their questions went far beyond the basic level of beginners. There was also a lot of interest in the Symposium on Pressurized Foods which was part of the formal program.

* * *

Speaking of the IFT, John Jackson, manager of the special investigations section of the Research and Technical Department of American Can's Barrington, Ill. laboratories, is the new president-elect of that group. Well-known in the aerosol industry, John has been chairman of the Food Aerosol Subcommittee of the CSMA Aerosol Division's Scientific Committee.

* * *

Predictions are that DDT may make a strong comeback if a new additive to prevent resistance proves out. Discovered in Israel and developed by Wisconsin Alumni Research Foundation, the additive has been licensed to S. B. Penick & Co. and General Chemical Division of Allied Chemical Corp. *N,N*-di-*N*-butyl-f-chlorobenzenesulfonamide, it prevents formation of dehydrochlorinase, a resistance-producing enzyme, in the insect. The material is now available in experimental amounts, pending USDA approval.

* * *

The CSMA plan to send an economy-priced excursion plane to the International Aerosol Congress at Lucerne in October has apparently fallen somewhat short of the necessary quota of 100. Those who intended to sign up and didn't may still have a slight hope if they contact the CSMA office immediately.

* * *

Specially formulated hair sprays (that is, those offering unique additives, coloring agents, or perfumes) may supplant general purpose hair sprays in the future, suggests Marie Fromow of *Good Housekeeping* magazine in response to a survey asking about the future of the cosmetic market (in the May 1 *Drug Trade News*).

* * *

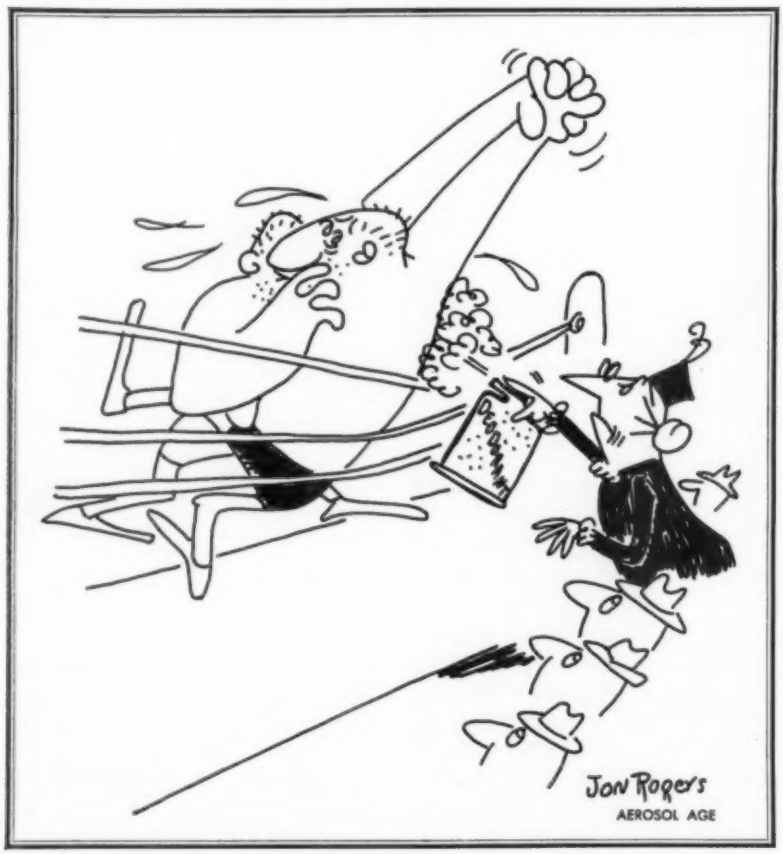
The British subsidary of Simoniz has managed the neat trick of bringing out its "Reddi Starch" as the first such product on the British market. The 8-ounce can retails at 84 cents (U. S. equivalent). A number of other marketers, including Durrazone (Choice) Ltd., winner of the 1960 Grand Prize in the CSMA Aerosol Contest for its Spot Remover package, are also reported to be readying starch products for the market.

* * *

The polyethylene extension for the aerosol valve, first thought up by makers of electronic equipment sprays two years ago, has made its appearance on insecticide products. Whitmire Research Laboratories, Inc., St. Louis, has equipped its "Industrial Aerosol Insecticide" with the polyethylene tubing and calls it the "Pin-Point Bug Flusher". 12-ounce unit has six-inches of 1/16" diameter tubing and is advertised to "spray around curves, up or down, cracks and crevices".

* * *

"Ultrasonics", high-intensity focused ultrasound, is an electronic term which has been creeping into aerosol terminology of late. First mention heard here was news that a major marketer of aerosol colognes and perfumes is using ultrasonics as the best method of thoroughly cleaning stainless steel containers of solvents and degreasers. The February issue of *Electronics* reports that ultrasonics are being used as atomizers to produce "aerosols for inhalation therapy." The report indicates that aureomycin hydrochloride, digitalis, and penicillin have been atomized ultrasonically without diminution of pharmaceutical properties.



PETERSON FILLS *Both*... LIQUIDS AND AEROSOLS

A *Complete* Packaging Service That Can Mean Important Freight Savings To You...

AEROSOLS...
filled by efficient, accurate, high-speed pressure or cold-filling methods with halocarbon or hydrocarbon propellants (or a combination of both).

LIQUIDS...
filled in metal, glass or *plastic* in any size from 2-ounce containers to 55-gallon drums.

And when your products must be sent to common destinations in different types of packages, Peterson can do all the filling and, then, combine the various types into dollar-saving single shipments. For complete details, write, wire or phone...

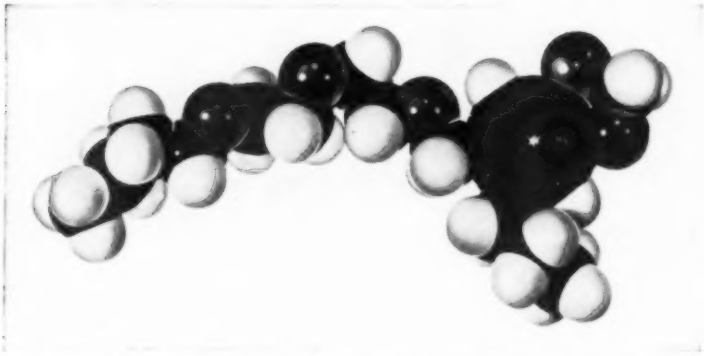
PETERSON
Filling and Packaging Co.
HEGELER LANE • DANVILLE, ILLINOIS

Fairfield Facts

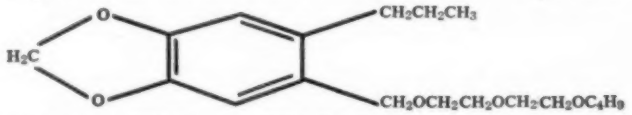
CHEMICAL EDITION ★ ★ ★

PIPERONYL BUTOXIDE

Technical Data



Physical and Chemical Properties



Spec. Grav at 20°/20° C.	1.040-1.070	Approx. wgt./gal.	8.79 lbs.
Propellent insolubles	None	Solubility in base oil	100%
Color G-H 1933	9.5	Flash Point °F.	310
Refractive Index at 25° C.	1.494-1.510	Water Content	0.05%

Soluble in most organic liquids including petroleum oils.

The active ingredient of piperonyl butoxide is 1-(2,5,8- trioxadodecyl)-3, 4-methylenedioxy-6-(n-propyl) benzene. For registration purposes, the Commercial product may be designed as consisting of at least 80% (Butyl carbityl) (6 propyl-piperonyl) ether and 20% of related compounds.

Piperonyl Butoxide protects pyrethrins as it synergizes. Piperonyl Butoxide reduces the effect of light, air and heat on pyrethrins and screens out ultraviolet light. As an acid acceptor it retards decomposition and polymerization.

SYNERGISM and effectivness of ratios of pyrethrins and piperonyl butoxide on houseflies (Compilations from probit-regression studies).

Equal cost, base oil dilutions	Avg. Knockdown (%)			24 Hr.
	3 min	5 min	10 min	KD Kill
Pyrenone KD Conc.	53	70	92	61
Pyrenone Roach Spray Con.	55	69	93	72
Pyrenone 20 New	61	80	94	76
Pyrenone O.T. 50-5	63	72	94	82

*Reg. U.S. Pat. Off., FMC

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION

Fairfield Chemicals

Sales Headquarters

441 LEXINGTON AVENUE, NEW YORK 17, N. Y.

Branches in principal cities. In Canada: Natural Products Corporation, Montreal and Toronto.

Toxicological Properties

Undiluted Piperonyl Butoxide-Acute oral
LD50 for rats 11,500 mg/kg.
Chronic oral
LD50 for rats 8,750 mg/kg.

Extensions have been granted for piperonyl butoxide as per Paragraph 121.87 Federal Register of February 27, 1960 which states:

"#121.87 Extension of effective date of status for certain specified food additives as indirect additives to food.

"On the basis of data supplied in accordance with #121.85 and findings that no undue risk to the public health is involved and that conditions exist that make necessary the prescribing of an additional period of time for obtaining tolerances or denials of tolerances or for granting exemptions from tolerances, the following additives may be used in connection with the production, packaging and storage of food products, under certain specified conditions, for a period of 1 year from March 6, 1960, or until regulations shall have been issued in accordance with section 409 of the act, whichever occurs first. The extensions are granted under the condition that a minimum quantity of the additive will be incorporated in the food, consistent with good manufacturing practice."

BIOLOGICAL PROPERTIES

Although not an insecticide in its own right, piperonyl butoxide synergizes pyrethrins, allethrin and rotenone to a marked degree enhancing both the knockdown and kill properties on most major flying and crawling insects.

Copies of the following booklets may be obtained from local Fairfield representatives or by writing to Fairfield Chemicals, Food Machinery and Chemical Corporation, 441 Lexington Avenue, New York 17, New York.

☐ Pyrenone* Condensed Facts Folder—Summary of Tolerances, Extensions. Free of charge.

☐ FAIRFIELD FACTS FINDER—a new, 20-page comprehensive guide and unique, revolving calculator covering Pyrenone base formulations for dairy, garden, home and industrial sprays, aerosols and powders as well as an index to insects and pests. Price—$1.00